

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n 1

1. Edition

En

PE 6 P 100 A 320 RS 384 Z RQ 250/1100 PA 517 D

supersedes

company:

engine:

DAF

DKL 1160

Port closing difference between control-rod travel 9 mm
and control-rod travel 21 mm.

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,15-3,35) RW 9 mm (from BDC)
3,20-3,30

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 600 | 11,5+0,1 | 10,9 - 11,2 | 0,5 | | | |
| 225 | 7,2-7,4 | 1,0 - 1,4 | | | | |
| 1050 | - | C. Sp. 4-5 | 0,3 | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|-----------|---|------|--|-----------|--|-----|---|--------------------|-----------------------------------|--|
| Control rod travel mm 2 | | Control rod travel mm 4 | | Test specifications Control rod travel mm 5 | | Control rod travel mm 8 | | Test specifications Control rod travel mm 10 | | Control rod travel mm 12 | |
| 700 | 15,6-16,4 | 700 | 16,0 | 10,8 | 1140-1155 | 225 | 7,3 | 100 | min.7,5 | | |
| | | | | 4,0 | 1175-1205 | | | 225 | 7,2-7,4 | | |
| | | | | | | | | 325- 600 | 365=2,0 max.1,0 | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|--|---------------|----------------------------------|--|---|---------------|--|------|
| cm ³ /~1000 strokes 2 | | | | cm ³ /~1000 strokes 5 | | cm ³ /1000 strokes/mm 7 | |
| 600 | 109,5 - 112,5 | | | 1050 | 106,5 - 111,5 | 100 | 21,5 |
| | | | | | | | 7,2 |

Checking values in brackets

8.80

①

Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/4 SCA 11,0 k 1
1. Edition

En

PE 6 P 90 A RS 276 RQV 250-1100 PA241

Port-closing test with/without ROBO diaphragm

supersedes -

company:

Scania

engine:

D 11 - 190 PS

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6 \pm 0,1$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 8,5 - 9,2 | 0,4 | | | 2,5 ± 0,1 ** (max. 2,2-2,9) |
| 600 | 9 | 2,9 - 3,9 | | | | |
| | 12 | 7,4 - 8,4 | | | | |
| | 15 | 12,2 - 13,5 | | | | |
| 200 | 9 | 1,8 - 2,8 | | | | |

Adjust the fuel delivery from each outlet according to the values in

*** In the case of greater dispersion after the delivery-valve spring pre-tension accordingly.

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 68 | 1150 | 15,0-18,2 | - | - | - | ca. 10 | 200 | 5,8-8,0 | 200 | 0 - 1,0 |
| | 1380 | 0 - 1,5 | | | | | 300 | 3,1-4,4 | 350 | 2,0-2,5 |
| ca. 62 | 1100 | 15,0-17,8 | | | | | 400 | 2,6-3,6 | 600 | 4,3-4,7 |
| | 1150 | 10,2-13,8 | | | | | 500 | 1,8-3,0 | 1150 | 8,3 |
| | 1200 | 5,0-10,0 | | | | | 600 | 0,8-2,0 | | |
| | 1250 | 0 - 5,6 | | | | | 780 | 0 | - | - |
| | 1320 | 0 | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|--|--|------------------------------------|--|------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1080 | 142,0-144,0 | 1135-1145* | 500 | 135,0-139,0 | 100 | 220 - 270 | | |
| | | | | | 225 | 8 - 11 dispersion.max. | 1,5)* | |
| | | | | | 1200 | 14 - 24 dispersion.max.4 | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.76

BOSCH

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A4

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4
1. Edition

En

PE 8 P 120 A 920/4 RS3030 RQV 350/575-750 PA273R

supersedes -
company: Rolls Royce
engine: C 8 T
(340)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,50-3,60$
(3,45-3,65) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 720 | 13,8 (+0,1) | 24,7 - 25,1 | 0,5(0,8) | | | |
| 350 | 6,0 | - - - | | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|--------------------------|-------------------------------------|---------------------------------------|--------------------------|------------------------------------|-----------------------|-----------------------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 750 790 860 | 15,0-18,6 0 - 8 0 | ca. 45 | 550 600 670 685 | 11,8-17,6 7,3-12,0 0 - 2 0 | ca. 12 | 300 450 550 625 | 6,3-8,2 3,6-4,0 1,6-4,0 0 | 325 400- 750 | 0,4-1,5 500= 1,9-2,1 8,3 |
| | | | | | | ③a | | | - | - |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|---------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 720 | 247,0-251,0 (244,0-254,0) | 760 - 770 | | | 100 | ca. 16 mm RW | |

Check in brackets

* 1 mm less control rod travel than col. 2

8.77

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4

1. Edition

En

PE 6 P 110 A 320 RS 328 RQV 300-1500 PA 303 R

supersedes

company:

engine:

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,5 + 0,1 mm (from BDC) 21 mm RW

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|-----------------------------|---|--|-----------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 12,0 | 17,3 - 18,0 | | | | |
| 600 | 6,0 15,0 | 5,2 - 6,4 10,7 - 22,6 | | | | |
| 200 | 6,0 | 1,9 - 2,9 | | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|---|--|---------|-----------------------------|--|--------------------------|---|-----------------------|-----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 64 | 1540 1600 1700 1800 | 15,0-17,6 11,0-14,8 2,6- 9,2 0 - 3,2 | | | | ca. 11° | 200 440 600 900 | 6,8-8,0 3,6-5,0 2,6-3,8 0 -1,2 | 1540 | 8,2 |
| | | | | | | ③a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | Torque-control travel | |
|---|-------------------------------|--|--|-------------------------------|---|--------------------------|-----------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
| | | 1540 | | | | | |
| ca. 10 mm RW - Carry out adjustment on engine | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than cat. 2

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,0 e

1. Edition

En

PE 6 P 100 A 320 RS386

EP/RSV 200-1200 P 1/305R

supersedes

company

engine

Volvo-Penta
MD 70 C

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,80-2,90

Port closing at prestroke (2,75-2,95)

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 8,6-8,7 | 7,2 - 7,4 | 0,4(0,8) | | | 2,5±0,1 |
| 225 | 5,8-6,0 | 0,9 - 1,3 | 0,2(0,5) | | | (max. 2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | | | | ca. 27 | 225 | 5,4 | | |
| | x = | 5,2 | | | | | 100 | min 20 | | |
| ca. 67 | | 1240-1250 = 7,6 | | | | | 225 | 5,8-6,0 | | |
| ②a | | 1270-1300 = 4,0 | | | | | 335-395 | = 2,0 | | |
| | | 1400 0,3 - 1,7 | | | | | 550 | 0 - 1 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limit | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ | | ④a Idle stop | |
|-----------------------------|------------------------------------|---------------------------|---|------------------------------------|---|--------------------------|------------------------------------|--------------|--------------------------------|
| Test oil temp. 40°C (104°F) | | Note changed to) rev/min | | | | Idle | | | |
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | 4 | cm ³ /1000 strokes 5 | 6 | rev/min 7 | cm ³ /1000 strokes 8 | rev/min 9 | Control rod travel mm 10 |
| 1000 | 72,0 - 74,0 (69,0 - 77,0) | 1240-1250* | | | | 100 | 210 - 260 | | |
| | | | | | | 225 | 10 - 14 | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

5.79

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Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MWM 21,6 a
1. Edition

En

PE 12 P 120 A 520/5 RS 428 RSUV 300-1150 POA 324 DR

supersedes
company
engine

MWM
D 234 V 12
330 kW (449 PS)

1 - 2 - 9 - 10 - 5 - 6 - 11 - 12 - 3 - 4 - 7 - 8
je 30° ± 0,5° (± 0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8-2,9

Port closing at prestroke (2,75-2,95)

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1150 | 9,6-9,7 | 17,0 - 17,4 | 0,5(0,9) | | | |
| 300 | 6,5-6,7 | 2,8 - 3,6 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| ① Upper rated speed rev/min Degree of deflection of control lever 1 | | | Intermediate rated speed | | | ④ Lower rated speed Control-lever deflection in degrees 7 | | | ③ Torque control rev/min 10 | | Control rod travel mm 11 |
|---|---------------------------------------|-----------|--------------------------|---|---|---|-------------------------------|---------|-----------------------------------|---|--------------------------------|
| Control rod travel mm 2 | Control rod travel mm rev/min 3 | | 4 | 5 | 6 | rev/min 8 | Control rod travel mm 9 | | | | |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 22 | 300 | 6,1 | - | - | |
| | x = | 4,0 | | | | | 300 | 6,5-6,7 | | | |
| ca. 64 | 8,6 | 1190-1200 | | | | | 410-470 | =2,0mm | | | |
| ②a | 4,0 | 1235-1265 | | | | | | | | | |
| | 1400 | 0,3- 1,7 | | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop Test oil temp. 40°C (104°F) rev/min 1 | | ⑥ Rotational-speed limit Note: changed to) rev/min 3 | | ③a Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle rev/min 6 | | ⑤ Idle stop rev/min 8 | | Control rod travel mm 9 |
|--|------------------------------|---|---|--|---|--|--------------------------------------|-----------------------------|---|-------------------------------|
| cm ³ /1000 strokes 2 | | | | cm ³ /1000 strokes 5 | | cm ³ /1000 strokes 7 | | | | |
| 1150 | 170,0-174,0 (167,0-177,0) | 1190-1200* | - | - | - | 100 | 240,0-260,0 / 15,8 - 16,0 mmRW | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.82

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Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,0 g 1

1. Edition

En

PE 6 P 110 A 320 RS 390

RSV 200-1200 P4/305

supersedes -

company

engine

Volvo-Penta
TD 70 GG

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,0 - 3,1$ mm (from BDC)
(2,95- 3,15)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 11,3+0,1 | 10,0 - 10,2 | 0,4(0,8) | | | 2,5 ± 0,1 |
| 200 | 6,1-6,3 | 1,7 - 2,7 | 0,25(0,55) | | | (2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | - | - | - | ca. 20 | 200 | 5,7 | | |
| | x = 4,0 | | | | | | 100 | min. 10,0 | | |
| | | | | | | | 200 | 6,1-6,3 | | |
| ca. 70 | 10,3 | 1240-1250 | | | | | | | | |
| 2a | 4,0 | 1250-1280 | | | | | | | | |
| | 1400 | 0,3 - 1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|------------------------------------|------------------------------|---|----------------------------------|-----|-----------------------------|---|--------------|----|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | | | | | | | |
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 700 | 100,0-102,0 (97,0-105,0) | 1240-1250* | - | - | 100 | 10,0-21,0 mm RW | - | - | - |

Checking values in brackets

* 1 mm less control rod travel than col 2

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8.81

A21

A21

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 11,0 q
2. Edition

En

PE 6 P 110 A 720 RS 310 EP/RSV 350-1100 P 1/310 R

supersedes
company Scania
engine DSI 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,4 \pm 0,1$ mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 14,0 | 19,3 - 19,5 | 0,6(0,8) | | | 2,5±0,1** (max. 2,2-2,9) |
| | (±0,1) | | | | | |
| 350 | 5,5 (±0,1) | 1,0 - 1,4 | 0,2(0,7) | | | |
| 600 | 14,0 (±0,1) | 19,4 - 19,8 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 67 | 1100 | 16,0 | without auxiliary spring | | | ca. 31 | 350 | 6,0 | max. | |
| | 1150 | 11,7 | | | | | 100 | 19 - 21 | | |
| | 1200 | 6,0 | | | | | 350 | 5,7-6,3 | | |
| | 1150 | 10,4-12,5 | with auxiliary spring | | | | 400 | 3,2-4,7 | | |
| 2a | 1200 | 4,4- 7,8 | | | | | 550 | 0 - 1 | | |
| | 1350 | 0,3- 1,0 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|-------------------------------|------------------------------|---------|----------------------------------|---|-----------------------------|-------------------------------|--|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | | | | | | | |
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | 5 | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | | 6 | 7 | 8 | 9 |
| 1000 | 193,0-195,0 (190,0-198,0) | 1140-1150* | 600 | 194,0-198,0 (191,0-201,0) | | | | | |
| | | | | | | 350 | 12 - 16 | dispersion max. 2,0)** (ca. RW 5,5mm) | |
| | | | | | | 1200 | 28 - 33 | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

5.76

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A24

A24

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 b

2. Edition

En

PE 6 P 90/320 RS142 RQ 200/1000 PA98/1R
PE 6 P 90A320 RS239

supersedes 8.72
company: D A F
engine: DKDL 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,8 + 0,1$ mm (from BDC) $(+0,15)$
 $(-0,05)$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 10,4 - 11,2 | 0,5 | | | |
| 600 | 9 | 4,5 - 5,9 | | | | |
| | 12 | 9,1 - 10,8 | | | | |
| | 15 | 14,0 - 15,9 | | | | |
| 200 | 9 | 3,5 - 4,5 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation ④ | | | | Idle speed regulation ⑤ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--------------|-------------------------------|-------------------------------|--------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 450 | 15,7-16,3 | 450 | 16,0 | 1050 | 15,6-16,0 | 430 | 0 | 100 | 6,0-8,1 | | |
| | | | | 1080 | 9,6-14,0 | | | 200 | 3,4-5,6 | | |
| | | | | 1120 | 0 - 7,7 | | | 300 | 0 - 1,6 | | |
| | | | | 1160 | 0 - 1 | | | 330 | 0 | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|--|------------------------------------|---------------------|----------------------------------|------------------------------------|--|---------------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 850 | 107,7 - 109,5 (105,5 - 111,5) | | | | | |

Checking values in brackets

2.77

Testoil-ISO 4113

B7

B7

BOSCH

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Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

1. Edition

En

PES 6 P 110 A 720/3 RS 3036

RQV 300/450-900 PA 372KR

supersedes

company:

Mack

engine:

ETAY 673 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,35-2,45 mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 900 | 15,2 | 22,8 - 23,0 | 0,6 | | | |
| 300 | 5,0 | 1,2 - 2,2 | 0,2 | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|---------|-----------------------------|--|--------------------------|---|--------------------------|--------------------------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 69 | 970 1050 1100 1200 | 15,5-18,0 7,0-11,6 1,7- 7,8 0 | - | - | - | ca. 19 | 250 300 600 700 | 9,8-11,3 7,5- 8,5 1,3- 2,5 0 - 1 | 200 500 800 960 | 0,2-1,2 4,0-4,4 6,3-6,7 8,3 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational speed | Fuel delivery characteristics | | Starting fuel delivery | | Torque-control | |
|---|-------------------------------|--------------------|-------------------------------|-------------------------------|------------------------|-------------------------------|----------------|-----------------------------|
| Control rod stop | | limitation | high idle speed | | idle | | travel | |
| Test oil temp. 40°C (104°F) | | intermediate speed | | | switching point | | | |
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 900 | 228,0-230,0 | 940-950* | 725 | 234,0-238,0 | 100 | 110,0-170,0 | | |
| | | | 600 | 228,0-232,0 | 300 | 14,0- 24,0 | | |
| | | | | PLE: | 300 | 94,0-109,0 | | |
| | | | | | 0.740-0.820 | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.79

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001 Fiat 13,8 e
2. Edition

En

PES 6 P 120 A 820 RS3058 RQV 300-1300 PA454KR

supersedes

company:

engine:

2.80
Unic-Fiat
8220-02-142

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,60-3,70}{(3,55-3,75)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 1300 | 9,2-9,3 | 14,3 - 14,7 | 0,5(0,8) | | | |
| 300 | 5,1-5,3 | 1,7 - 2,3 | 0 (0,7) | | | |
| 500/700 | - - | C, 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | | Intermediate rated speed | | | | Lower rated speed | | | Sliding sleeve travel | | | |
|---------------------------------------|-------------------------------------|-------------------------------------|----------|---------------------------------------|---------|--------------------------|---|---------------------------------------|------------|--------------------------|-----------------------|--------------------|---------------------------|---|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | ①a ②a | Degree of deflection of control lever | rev/min | Control rod travel mm | ④ | Degree of deflection of control lever | rev/min | Control rod travel mm | ③ | rev/min | mm | ① |
| 1 | 2 | 3 | | 4 | 5 | 6 | | 7 | 8 | 9 | | 10 | 11 | |
| ca. 68 | 1300 1550 | 15,2-17,8 0 - 1 | | - | - | - | | ca. 14 | 100 300 | min. 6,7 5,1-5,3 | | 300 600 1320 | 1,0-2,0 3,5-4,0 8,3 | |
| ca. 60 | 8,2 4,0 | 1340-1350 1410-1440 | | | | | | 320-430 ③a | | | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------|---|---|------------------------------|---|-----------------------|----------------------------|----------------------------------|
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1300 | 143,0-147,0 (140,0-150,0) | 1340-1350* | 500 | 103,0-109,0 (100,0-112,0) | 100 | 150,0-170,0 | 1300 | 9,2-9,3 |
| | | | 700 | 123,0-129,0 (120,0-132,0) | 100-220(80-240) | | 900 | 9,1-9,3 |
| | | | | | | | 700 | 8,8-9,0 |
| | | | | | | | 500 | 8,6-8,7 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

10.80

BOSCH

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①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4

3. Edition

En

PE 6 P 120 A 321 RS 359

RQV 250-1200 PA 254R

supersedes

company:

engine:

3.78

Berliet

MID 62030

(175 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,50-3,60
(3,45-3,65)

mm (from BDC)

Testoil-ISO 4113

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 1200 | 10,3 | 14,3-14,7 | 0,5(0,9) | | | |
| 250 | (+0,1) 5,6-5,8 | 1,2- 1,7 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---|---|---|---|--------------|----------------------------------|---|----------------------------------|----------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 68 | 1200 1450 | 15,2-17,8 0 - 1 | - | - | - | ca. 13 | 100 250 530-570=2,0 720 | min. 7,2 5,6-5,8 0 - 1 | 200 800 1190 | 0,3-1,1 4,3-4,7 8,3 |
| ca. 66 | 9,5 4,0 | 1240-1250 1300-1330 | | | | ③a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational speed ②b limitation intermediate speed rev/min ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b rev/min cm ³ /1000 strokes | | Starting fuel delivery Idle switching point ⑥ rev/min cm ³ /1000 strokes | | Torque-control ⑤ travel rev/min Control rod travel mm | |
|---|------------------------------|---|---|---|--|-----------------------------|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1200 | 139,0-143,0 (136,0-146,0) | 1240-1250* | | | 100 100 | 140,0-190,0 -170(80-190) | | |

Checking values in brackets

*: 1 mm less control rod travel than col. 2

10.78

BOSCH

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B19

013

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

3. Edition

En

PE 6 P 120 A 320 RS 341 RQV200-1100 PA 322 DR

supersedes

company:

AEC

engine:

L 12

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,40-3,50}
(3,35-3,55) mm (from BDC) Cyl. 6

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1100 | 10,2-10,3 | 18,0 - 18,4 | 0,5(0,8) | | | |
| 225 | 7,6-7,8 | 3,5 - 4,1 | 0,4(0,7) | | | |
| 600/500 | - | C, 4-5 | 0,7(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--------------|------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------------------------|-----------------------|-----------------------|-----------------------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1100 1300 | 15,2-17,8 0 - 1,0 | | | | ca. 29 | 100 225 330-190=2,0 | min. 9,2 7,6-7,8 | 225 425 1150 | 1,4 3,3-3,4 7,9 |
| ca. 58 | 9,3 4,0 | 1140-1150 1180-1210 | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 180,5-184,5 (177,5-187,5) | 1140-1150* | 600 | 132,0-138,0 (129,0-141,0) | 100 | 100,0-130,0 | 1100 | 10,2-10,3 |
| | | | 500 | 120,0-124,0 (117,5-127,5) | 225 | 35,0- 41,0 | 500 | 10,7-10,9 |
| | | | | | 100- | 150(80-170) | 600 | 10,7-10,9 |

Checking values in brackets

*1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4 FIA 9,8a

2. Edition

En

PES 6 P 110 A 820 RS381

RQV 225-1300 PA 430/2R

supersedes

1.79

company:

Unic-Fiat

engine:

X 200

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,00-2,10}{(1,95-2,15)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1300 | 9,6-9,7 | 10,2 - 10,4 | 0,4(0,8) | | | |
| 225 | 6,8-7,0 | 1,6 - 2,2 | 0,4(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|------------------------|-------------------------------|-----------------------|--------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca .68 | 1300 1600 | 15,2-17,8 0 - 1 | - | - | - | ca .11 | 100 225 460-520= | min.8,5 6,8-7,0 2,0 | 225 450 | 0,8-1,0 2,8-3,2 |
| ca .58 | 8,6 4,0 | 1340-1350 1425-1455 | | | | (3a) | 600 | 0 - 1 | 1350 | 8,5 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) . (2) | | Rotational-speed limitation intermediate speed (2b) | Fuel delivery characteristics (5a) high idle speed (5b) | | Starting fuel delivery idle switching point (6) | | Torque-control travel (5) Control rod travel mm | |
|---|------------------------------------|--|--|------------------------------------|--|------------------------------------|--|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1300 | 102,0-104,0 (99,0-107,0) | 1340-1350* | | | 100 | 170,0-210,0 | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

2,79

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 PEN 10,0 c

1. Edition

En

PE 6 P 110 A 320 RS138

RQV 250-1100 PA401/2R

supersedes

company:

Volvo-Penta

engine:

HD 100 D

177 kW (240PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,60-2,70
(2,55-2,75) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 8,6-8,7 | 8,7-8,9 | 0,4(0,8) | | | 2,5±0,1** (max.2,2-2,9) |
| 250 | 5,6-5,7 | 0,8-1,2 | 0,25(0,6) | | | |

Adjust the fuel delivery from each outlet according to the values in .

** In the case of greater dispersion after the delivery-valve spring pre-tension accordingly.

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|----------------------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 50 | 1100 1400 | 15,2-17,8 0 - 1 | - | - | - | ca. 11 | 100 250 | min. 8,4 5,6-5,7 | 200 | 0,2-0,8 |
| ca. 45 | 7,6 4,0 | 1160-1170 1205-1230 | | | | | 345-365 = 2,0 500 0 - 1 | | 1170 | 8,2 |
| | | | | | | 3a | | | - | - |

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|---|--|------------------------------------|---|---|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 700 | 87,0-89,0 (84,0-92,0) | 1160-1170* | | | 100 250 | 300 - 340 10 - 14 dispersion.max.2,5) | ** | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

3.78

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Testoil-ISO 4113

B24

024

Test Specifications Fuel Injection Pumps ② and Governors

WPP 001/4
2. Edition

En

PE 6 P 100 A 720 RS 414 RQ 300/1175 PA 507

supersedes

company:

engine:

4.80

F B W

CU 6 A

1 - 5 - 3 - 6 - 2 - 4

0 -60 -120-180-240-300 $\pm 0,50(0,75)$

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,75-2,95)

Port closing at prestroke

2,80-2,90

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1175 | 12,4 | 12,3 - 12,5 | 0,3(0,6) | | | |
| 300 | +0,1 8,1-8,3 | 1,7 - 2,3 | 0,3(0,5) | | | |
| 600 | - | C, Sp. 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 | | Idle speed regulation Setting point rev/min 7 | | Test specifications Control rod travel mm 10 | | Torque control rev/min 11 | |
|---|-------------------------------|---|-------------------------------|--|--------------|--|-------------------------------|---|-------------------------------|---------------------------------|--------------------------------|
| | Control rod travel mm 2 | | Control rod travel mm 4 | | rev/min 6 | | Control rod travel mm 8 | | Control rod travel mm 9 | | Control rod travel mm 12 |
| 550 | 15,6-16,4 | 550 | 16,0 | 11,4 | 1220-1235 | 300 | 6,0 | 100 | min. 7,5 | 1175 | 12,4-12,5 |
| | | | | 4,0 | 1285-1315 | | | 300 | 5,9-6,1 | 600 | 12,4-12,6 |
| | | | | | | | | 390- | 430=2,0 | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|--|---|----------------------------------|--------------------------------|---|---|--|--------------------------------|
| | cm ³ /-1000 strokes 2 | | Control rod travel mm 3a | | cm ³ /-1000 strokes 5 | | Control rod travel mm 6b |
| LDA 1175 | 0,7 bar 123,0 - 125,0 (121,0 - 127,0) | | | LDA 600 | 0,7 bar 116,0-120,0 (113,0-123,0) | 100 | 120,0 - 140,0 |
| | | | | LDA 600 | 0 bar 81,0 -85,0 (78,0 -88,0) | 300 | 8,1 |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXX

| Pump/governor | Setting | Measurement | Control rod travel displacement difference XXXXXXX (1)X |
|---------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm |
| 414 - 507 | 0,7 bar | 0,35 0,25 0 | 12,6 - 12,7 12,0 - 12,1 11,1 - 11,3 10,7 - 10,8 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4

1. Edition

En

PES 6 P 120 A 420RS 3028

RQ 300/1100PA193DR

supersedes

company:

Saurer-Arbon

engine:

D2 KT290

3028

RQV250-1100PA194DR

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,90-3,00
(2,85-3,05)

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1100 | 11,9 (+0,1) | 22,8 - 23,2 | 0,5(0,8) | | | |
| 1100/700 | Section C, col.4-5 | | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ..193 DR

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 | | Idle speed regulation Setting point rev/min 7 | | Test specifications Control rod travel mm 10 | | Torque control rev/min 11 | | Control rod travel mm 12 |
|---|-----------|---|------|--|-----------|--|-----|---|----------|---------------------------------|-----------|--------------------------------|
| 600 | 15,6-16,4 | 600 | 16,0 | 10,9 | 1145-1160 | 300 | 6,0 | 100 | mind.7,5 | 1100 | 11,9-12,0 | |
| 1120 | 14,6-15,0 | | | 4,0 | 1200-1240 | | | 300 | 5,9-6,1 | 500 | 11,9-12,0 | |
| 1300 | 0 - 1 | | | | | | | 440 - 480 | =2,0 | | | |

Torque-control travel
on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | | Control rod travel mm 7 |
|--|---|----------------------------------|--|---|---|--|-------------|-------------------------------|
| LDA 1100 | 0,7 bar 228,0-232,0 (225,0-235,0) | | | LDA 700 | 0,7 bar 200,0-205,0 (197,0-208,0) | 100 | 170,0-190,0 | |
| | | | | LDA 1100 | 0 bar 178,0-184,0 (175,0-187,0) | | | |

Checking values in brackets

11.71

BOSCH

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C5

C5

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|---|---------------------------------------|---------|-----------------------|---------------------------------------|--------------------|-----------------------------------|-----------------------|------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68° | 1100 1380 1145 1220 | 15,2-17,8 0 - 1 ca. 10,9 ca. 4,0 | | | | ca. 12° | 100 250 410- | mind. 7,6 5,9- 6,1 490= 2,0 | 1100 500 | 11,9 11,9 |
| | | | | | | (3a) | | | | |

Torque control travel a = 0,6 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|---|---|--|--|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1100 | 0,7 bar 228,0-232,0 (225,0-235,0) | 1140-1150* | LDA 700 LDA 1100 | 0,7 bar 200,0-205,0 (197,0-208,0) 0 bar 178,0-184,0 (175,0-187,0) | 100 | 170,0-190,0 | | |

* 1 mm less control rod travel than co: 2

* 1 mm less control rod travel than co: 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min, decreasing pressure - in bar gauge pressure

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|------------------------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm |
| 3028 - 194DR 3028 - 193DR | 0,68 | 0,22 0,13 0 | 11,9 - 12,0 11,3 - 11,5 10,5 - 10,6 10,1 - 10,2 |

En

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 8,3 h

2. Edition

En

PE 6 P 100 A 720 RS343

RQ 250/1200 PA331R

EP/RSV 250-1200 P 0/417R./.

supersedes 6.76

company: van Doorne

engine: DHU 825

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 + 0,1$ mm (from BDC) $\begin{pmatrix} + 0,15 \\ - 0,05 \end{pmatrix}$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 11,4 - 11,7 | 0,5 | | | |
| 600 | 9 15 | 4,2 - 5,0 15,6 - 17,0 | | | | |
| 200 | 9 | 1,9 - 3,3 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQ ... 331 R

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 rev/min 6 | | Idle speed regulation Setting point rev/min 7 Control rod travel mm 8 | | Test specifications rev/min 9 Control rod travel mm 10 | | Torque control rev/min 11 Control rod travel mm 12 | |
|---|-----------|---|------|--|--|---|---|---|------------------------------------|---|---|
| 700 | 15,7-16,3 | 700 | 16,0 | 1220 1250 1320 1400 | 15,6-16,0 10,4-15,0 0 - 7,8 0 - 1 | 650 | 0 | 150 250 400 500 | 6,4-8,1 5,0-7,0 2,2-4,4 0 | - | - |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1245-1260 - 0,7 bar

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7 | |
|--|---|----------------------------------|--|---|---------------------------------------|---|--|
| LDA 1000 | 0,7 bar 127,0 - 130,0 (125,0 - 132,0) | | | LDA 500 | 0 bar 89,0 - 93,0 (87,0 - 95,0) | | |

Checking values in brackets

./.

8.76

BOSCH

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C7

C7

The numbers denote the sequence of the tests

B. Governor Settings

EP/RSV . 417R

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 55 | 1200 | 16,0 | without auxiliary spring | | | ca. 28 | 250 | 7,0 | 400 | 0 |
| | 1300 | 9,9 | | | | | 100 | 19 - 21 | | |
| | 1350 | 5,9 | | | | | 250 | 6,7-7,3 | 300 | 1,2-1,8 |
| ca. 53 | 1200 | 12,4-12,5 | with auxiliary spring | | | | 400 | 1,0-3,0 | | |
| | 1300 | 5,0- 6,8 | | | | | 530 | 0 - 1 | | |
| ②a | 1430 | 0,3- 1,0 | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ Idle | | ④a Idle stop | |
|-----------------------------|------------------|-----------------------------|--|----------------------------------|------------------|-------------------------------|------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA | 0,7 bar | | | LDA | 0 bar | | | | |
| 1000 | 127,0-130,0 | 1270-1280* | | 500 | 89,0-93,0 | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = 500 rev/min decreasing pressure - in bar gauge pressure
XXXXXX

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|----------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 343 - 331R + 417R | 0,49 | 0,23 | - 0,1 - 0,2 - - - - - |

Notes:

(1) when n = 1000 rev/min and gauge pressure = 0,7 bar (= maximum full-load control rod travel)

En

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 FBW 11,9 a
1. Edition

En

PE 6 P 120 A 721 RS 446 RQ 250/1025 PA 619

supersedes -
company: FBW
engine: EU 5 A/ESA

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\begin{matrix} 3,0-3,1 \\ (2,95-3,15) \end{matrix}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 10,8±0,1 | 19,6 - 20,0 | 0,5(0,8) | | | |
| 250 | 7,0-7,2 | 3,5 - 4,1 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 rev/min 6 | | Idle speed regulation Setting point rev/min 7 Control rod travel mm 8 | | Test specifications rev/min 9 Control rod travel mm 10 | | Torque control rev/min 11 Control rod travel mm 12 | |
|---|-----------|---|------|--|-----------------------------------|---|-----|---|--------------------|---|-------------------------------------|
| 550 | 15,5-16,4 | 550 | 16,0 | 9,8 4,0 1250 | 1070-1085 1135-1165 0 - 1,0 | 250 | 7,1 | 100 250 | min.8,6 7,0-7,2 | 1000 825 600 | 10,8-10,9 10,9-11,2 11,5-11,7 |

Torque-control travel on flyweight assembly dimension a = 0,5 mm Speed regulation: At 1070-1085 min⁻¹ 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /~1000 strokes 2 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 cm ³ /~1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7 | |
|--|---|----------------------------------|--|--|---|---|-------------|
| LDA 1000 | 0,7 bar 196,0-200,0 (193,0-203,0) | | | LDA 600 | 0,7 bar 174,0-180,0 (172,0-182,0) | 100 | 150,0-170,0 |
| | | | | LDA 600 | 0 bar 126,0-130,0 (123,0-133,0) | | |

Checking values in brackets

10.81

C9

C9

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D. Adjustment Test for Manifold Pressure Compensator

-2-

FBW 11,9 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|----------------------------|---------------------------------|-------------------------------------|---|
| PE6P..RS 446 - ..PA 619 | 0,7 | 0 0,5 0,41 | 11,5 - 11,6 9,4 - 9,5 10,9 - 11,0 9,9 - 10,1 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/\$ SAU 12,0 a
1. Edition

En

PES 6 P 120 A 420 RS 3063 RQ 300/1000 PA 515

1 - 4 - 2 - 6 - 3 - 5 je 60°

supersedes -

company:

engine:

Saurer

D3 KT 80,1

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\overset{(3,15-3,35)}{3,20-3,30}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 11,2 | 20,7 - 21,1 | 0,5(0,8) | | | |
| 300 | 5,7-5,8 | 1,3 - 1,9 | 0,8(1,2) | | | |
| 700/400 | - | C, Sp.4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check ① | | Full-load speed regulation Setting point ① | | | | Idle speed regulation Setting point ⑤ | | | | Torque control ③ | |
|-----------------------------------|-------------------------------|---|-------------------------------|-------------------------------|--------------|--|-------------------------------|--------------|--------------------------------|------------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 650 | 15,6-16,4 | 650 | 16,0 | 10,2 | 1045-1060 | 300 | 5,8 | 100 | min.7,5 | 1000 | 11,2-11,3 |
| 1250 | 0 - 1 | | | 4,0 | 1090-1120 | | | 300 | 5,7-5,9 | | |
| | | | | | | | | 380-420 | = 2,0 | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) ② | | Control rod stop ③a | Fuel delivery characteristics ③b | | Starting fuel delivery Idle speed ⑥ | |
|--|---|---------------------|----------------------------------|---|--|---------------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| LDA 1000 | 0,7 bar 207,0-211,0 (214,0-224,0) | | LDA 700 | 0,7 bar 196,0-200,0 (193,0-203,0) | 100 | 230,0-240,0 |
| | | | LDA 400 | 0 bar 119,0-123,0 (116,0-126,0) | | |

Checking values in brackets

8.80

C11

C11

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

-2-

SAU 12,0 a

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 3063 - 515 | 0,7 bar | 0,38 0,25 0 | 11,2 - 11,3 11,1 - 11,2 10,0 - 10,1 9,7 - 9,8 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 n
2. Addition

En

PE 6 P 110 A 320 RS 407 RQ 250/1100 PA 428/2R

supersedes 10,79
company: DAF
engine: 1160
(185kW-252PS)

Se Service Information I-DAF 004!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,80-2,90) mm (from BDC)
(2,75-2,95)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 850 | 12,3-12,4 | 13,9 - 14,1 | 0,4(0,8) | | | |
| 250 | 7,0-7,2 | 0,9 - 1,3 | 0,4(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 | | Idle speed regulation Setting point rev/min 7 | | Test specifications Control rod travel mm 10 | | Torque control rev/min 11 | |
|---|-------------------------------|---|-------------------------------|--|--------------|--|-------------------------------|---|--------------|---------------------------------|--------------------------------|
| | Control rod travel mm 2 | | Control rod travel mm 4 | | rev/min 6 | | Control rod travel mm 8 | | rev/min 9 | | Control rod travel mm 12 |
| 700 | 15,6-16,4 | 700 | 16,0 | 11,3 | 1145-1160 | 250 | 7,1 | 100 | mind.8,5 | - | - |
| 1350 | 0 - 1,0 | | | 4,0 | 1200-1230 | | | 250 | 7,0-7,2 | | |
| | | | | | | | | 345- | 385=2,0 | | |
| | | | | | | | | 450 | 0 - 1 | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|--|------------------------------------|----------------------------------|--|---|------------------------------------|--|---------------------------------------|
| | cm ³ /1000 strokes 2 | | | | cm ³ /1000 strokes 5 | | cm ³ /1000 strokes/mm 7 |
| LDA | 0,5 bar | | | LDA | 0 bar | 100 | 245,0-285,0 |
| 850 | 139,5-141,5 (136,5-144,5) | | | 600 | 135,5-138,5 (132,5-141,5) | 250 | (Electromagnet 24V) 11 - 15 |

Checking values in brackets

8.81

C17

C17

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D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 600 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXX

DAF 11,6 n

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|---------------------------|---------------------------------|-------------------------------------|--|
| ..RS 407 - ..PA 428/2R | 0,7 | 0,3 0 | 12,3 - 12,4 12,1 - 12,2 12,0 - 12,1 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

SCA 11,0 i

3. Edition

En

PE 6 P 100 / 720 RS145, 202 RQV 250-1100 PA53, 168
RS145Z PA106
RS145, 202 PA153, 167
RS145Z, 202Z PA153, 167

supersedes 5.75
company: Scania
engine: DS 11 A

Port-closing test with/without ROBO diaphragm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6 + 0,1 mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 11,6 - 12,1 | 0,5 | | | 2,5±0,1** (max.2,2-2,9) |
| 600 | 9 | 3,7 - 4,9 | | | | |
| | 12 | 9,5 - 10,9 | | | | |
| | 15 | 15,0 - 16,8 | | | | |
| 200 | 9 | 2,4 - 3,4 | | | | |

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion after the delivery-valve spring pre-tensioning accordingly.

B. Governor Settings

RQV .. 58, 106, 153, 167

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--------------------------------------|---|--|--------------|----------------------------|--|--|---|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min 2 | Control rod travel mm 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 66 | 1100 1150 1200 1230 1310 | 14,0-16,8 9,2-13,3 3,6- 9,6 0 - 7,2 0 | | | | ca. 10 | 210 270 370 430 570 650 | 5,7-8,0 3,4-6,0 2,2-3,8 1,4-2,7 0 -1,2 0 | 1100 | 8,4 |
| | | | | | | ③a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) . (2) | | Rotational-speed limitation intermediate speed (2b) | Fuel delivery characteristics high idle speed (5b) | Starting fuel delivery idle switching point (6) | Torque-control travel (5) | |
|---|--------------------------------------|---|---|---|------------------------------|--|
| rev/min | cm³/1000 strokes | rev/min (4a) | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| LDA 1100 (14,5 | 0,5 bar 159,0-161,0 ± 0,5mmRW) | 1120 | LDA 600 LDA 500 | 0,5 bar 154,0-158,0 0 bar 128,0-132,0 | 100 225 1200 | 190 - 240 9 - 13 dispersion max.1,5)** 39 - 44 dispersion max.4) |
| (increase by 1,0 cm³) | | | | | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col. 2

1.77

Testoil-ISO 4113

B. Governor Settings

RQV .. 168

SCA 11,0 i

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|------------------------------|--|---------------------------------------|---------|-----------------------|---------------------------------------|--------------------------|------------------------------------|-----------------------|-----|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 66 | 1120 1200 1300 1410 | 15,0-17,6 9,2-13,6 1,0- 7,6 0 | - | - | - | ca. 10 | 150 250 400 500 | 6,5-8,0 3,6-6,1 1,1-2,4 0 | 1120 | 8,3 |
| | | | | | | 3a | | | | |

Torque control travel a = mm

Ppe 145Z

Ppe 202Z

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational speed limitation intermediate speed | Fuel delivery characteristics high idle speed | Starting fuel delivery idle switching point | Torque control |
|---|--------------------------------------|--|---|--|--|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | rev/min |
| 1 | 2 | 3 | 4 | 6 | 8 |
| LDA 1100 (13,5) | 0,5 bar 144,0-146,0 ± 0,5 mmRW | 1120 | LDA 500 | 100 225 1200 | 190 - 240 9 - 13 39 - 44 |
| | | | | | dispersion max.1,5)** dispersion max.4) |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure CompensatorTest at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXX

| Pump/governor | Setting | Measurement | Control rod travel | diminution difference (1) |
|------------------------------|----------------------|----------------------|----------------------|---------------------------|
| | Gauge pressure = bar | Gauge pressure = bar | mm | (2) |
| 145 - 58) 202 - 168) | 0,26-0,28 | 0,14-0,17 | -0,1 (1) -1,0 (1) | ca.1,2 (2) |
| 145 - 153) 202 - 167) | 0,40-0,44 | 0,24-0,28 | -0,1 (1) -1,0 (1) | ca.1,2 (2) |
| 145Z - 106 | 0,19-0,22 | 0,15-0,18 | -0,1 (1) -0,4 (1) | ca.0,6 (2) |
| 145Z - 153) 202Z - 167) | 0,19-0,21 | 0,14-0,16 | -0,1 (1) -0,4 (1) | ca.0,6 (2) |

En

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 SCA 11,0 p

6. Edition

En

PE 6 P 110 A 720 RS 3017 RQV 200-100 PA 283KR
RS 3014 EP/RSV 350-1100 P 1/310R./.

supersedes 2.76
company: Scania
engine: DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 + 0,1 mm (from BDC) (+0,15)
(-0,05)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 1000 | 12 | 13,5-14,1 | 0,5 | | | 2,5 + 0,1 (max. 2,2-2,9)** |
| 600 | 15 | 19,7-21,4 | | | | |
| 200 | 9 | 4,2- 5,2 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

RQV .. 283KR

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---|---|---|---|--------------|----------------------------------|---|--------------|----------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 64 | 1130 | 15,0-17,0 | - | - | - | ca. 13 | 90 | 7,4-8,0 | 200 | 0,2-1,3 |
| | 1200 | 9,2-13,6 | | | | | 180 | 5,8-8,0 | 500 | 3,8-4,4 |
| | 1250 | 5,3-10,8 | | | | | 270 | 2,8-5,4 | 900 | 6,2-6,6 |
| | 1310 | 0 - 7 | | | | | 300 | 2,3-4,2 | 1120 | 8,3 |
| | 1410 | 0 | | | | | 400 | 1,3-2,3 | | |
| | | | | | | | 500 | 0 | | |

Torque control travel a = mm - Section C, col. 8

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics high idle speed ⑤b | | Starting fuel delivery Idle switching point ⑥ | | Torque-control ⑤ | |
|---|------------------------------------|--|---|------------------------------------|---|------------------------------------|------------------|----------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA | 0,7 bar | 1135-1145* | LDA | 0,7 bar | 100 | 190 - 240 | 1100 | 13,5 |
| 850 | 156,0-158,0 | | 1100 | 175,0-181,0 | | | 850 | 12,7 |
| | | | LDA | 0 bar | 225 | 9 - 13** | 700 | 12,8 |
| | | | 500 | 133,0-137,0 | 1200 | 25,5-35,5 dispersion max. 4 | 600 | 12,9 |
| | | | | | | | | ./. |

Checking values in brackets

11 mm less control rod travel than col. 2
10.76

Testoil-ISO 4113

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Imprimé en République Fédérale d'Allemagne par Robert Bosch GmbH.

D1

2A

The numbers denote the sequence of the tests

EP/RSV .. 310R

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca.67 | 1100 | 16,0 | without auxiliary spring | | | ca.31 | 350 | 6,0 | | |
| | 1150 | 11,7 | | | | | 100 | 19 - 21 | | |
| | 1200 | 6,0 | | | | | 350 | 5,7-6,3 | | |
| | 1150 | 10,4-12,5 | with auxiliary spring | | | | | | | |
| | 1200 | 4,4- 7,8 | | | | | | | | |
| ②a | 1350 | 0,3- 1,0 | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | 400 | 3,2-4,7 | | | |
| | | | | | | 550 | 0 - 1 | | | |

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ Idle stop | |
|-----------------------------|-----------------------|-----------------------------|--------------|----------------------------------|--------------|--------------------------------------|--------------|-------------------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| 1100 | 161,0-163,0 | 1135-1145* | 600 | 162,5-165,5 | 100 | 190-240 | | | |
| | | | 1200 | 28,0- 33,0 dispersion max.4) | 350 | 10- 14)** dispersion max.2 (4) | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. .adjustment Test for Manifold Pressure Compensator

Test at n = 850 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXXXX

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 3017 - 283KR | 0,40 - 0,42 | 0,20 - 0,24 | 0,1- 1,0 |

Notes:

(1) when n =

1100 rev/min and
gauge pressure = 0,7

bar (= maximum full-load control rod travel)

En

①

Test Specifications Fuel Injection Pumps ① and Governors

40

VDT-WPP 001/4 SCA 8,0 c

1. Edition

En

PE 6 P 110 A 720 RS 3012 RQV 200-1200 PA 275
PE 6 P 110 A 720 RS 3013 EP/RSV 350-1200 P1/310

supersedes -
company: Scania
engine: DS 8

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $3,3+0,1$ mm (from BDC) $(+0,15)$
 $(-0,05)$

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 11,5 - 12,0 | 0,6 | | | 2,5 ± 0,1** (max. 2,2-2,9) |
| 600 | 15 | 15,9 - 17,4 | | | | |
| 200 | 9 | 2,3 - 3,3 | | | | |

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQV .. 275

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------------------|------------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 66 | 1240 1300 1430 1590 | 15,0-17,6 11,3-14,9 2,2- 8,5 0 | - | - | - | ca. 10 | 100 250 400 530 | 6,4-8,0 3,9-6,0 1,7-3,2 0 | 300 600 240 | 1,6-2,4 4,3-4,6 8,2 |
| | | | | | | 3a | | | - | - |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control ⑤ | |
|---|------------------------------------|---|----------------------------------|------------------------------------|---|-------------------------------------|------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1200 | 0,7 bar 115,0-117,0 | 1245-1255* | LDA 600 | 0,7 bar 113,5-116,5 | 100 | 190,0-240,0 | | |
| | | | LDA 500 | 0 bar 81,0- 85,0 | 225 | 9,0- 13,0 dispersion max. 1,5)** | | |
| | | | | | 1220 | 36,5 -46,5 dispersion max. 4) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

The numbers denote the sequence of the tests

SCA 8,0 c

EP/RSV ... P1/310

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 71 | 1200 | 16,0 | without auxiliary spring | | | ca. 31 | 350 | 6,0 | | |
| | 1250 | 11,9 | | | | | 100 | 19 - 21 | | |
| | 1300 | 6,3 | with auxiliary spring | | | | 350 | 5,7-6,3 | | |
| | 1250 | 10,8-12,4 | | | | | 400 | 3,3-4,5 | | |
| | 1320 | 2,4- 6,0 | | | | | 520 | 0 - 1 | | |
| 2a | 1420 | 0 - 1 | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|-----------------------------|------------------|------------------------------|---------|----------------------------------|------------------------|-----------------------------|---------|-----------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ... rev/min | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1200 | 115,0-117,0 | 1230-1240* | 600 | 113,5-116,5 | 100 | 190,0-240,0 | | | |
| | | | | | 350 | 9 - 13 | | | |
| | | | | | dispersion max. 1,5)** | | | | |
| | | | | | 1300 : 6 mmRW | | | | |
| | | | | | dispersion max. 4) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing pressure - in bar gauge pressure increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 3012 - 275 | 0,40 - 0,42 | 0,20 - 0,24 | - 0,1 - 1,1 |
| | | | |
| | | | |

Notes:

(1) when n = 600 rev/min and gauge pressure = 0,7 bar (= maximum full-load control rod travel)

En

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4
3. Edition

En

PE 6 P 120 A 320 RS348

RQV 250-1200 PA321R
EP/RSV 300-1200 P2/408R

supersedes...

company: Berliet

engine: MIDS 062 030

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

2,80-2,90
(2,75-2,95)

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1200 | 12,3 +0,1 | 17,6 - 18,0 | 0,4(0,8) | | | |
| 250 | 4,7-4,9 | 1,1 - 2,0 | 0,4(0,7) | | | |
| 500/300 | - - | C, 4-5 - | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--------------|----------------------------|--|--------------|----------------------------|--|------------------------------------|------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min 2 | Control rod travel mm 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 68 | 1200 1480 | 15,2-17,8 0 - 1 | | | | ca. 15 | 100 250 495-555 = 2,0 800 | min. 7,3 4,7-4,9 0 - 1 | 250 600 1130 | 0,4-1,5 2,9-3,6 8,3 |
| ca. 65 | 11,3 4,0 | 1240-1250 1320-1350 | | | | 3a | | | - | - - - |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|--|--|---|---------------------------------------|--|------------------------------------|-------------------------|----------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1200 | 0,45 bar 176,0-180,0 (173,0-183,0) | 1240-1250* | LDA 500 | 0,45 bar 91,0-97,0 (88,0-100,0) | 100 | 110,0-130,0 | | |
| | | | LDA 350 | 0 bar 54,0-58,0 (51,0-61,0) | 250 | 11,5- 19,5 | | |
| | | | | | 100-170 (80-190) | | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col. 2

9,78

D5

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B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca. 50 | 1150 | 16,0 | without auxiliary spring | | | ca. 21 | 300 | 4,8 | | |
| | 1250 | 10,8 | | | | | 150 | 19 - 21 | | |
| | 1340 | 4,8 | | | | | 300 | 4,5-5,1 | | |
| | 1250 | 10,4-11,2 | | | | | 450 | 2,0-3,4 | | |
| | 1350 | 3,6- 5,1 | | | | | 640 | 0 - 1 | | |
| ②a | 1500 | 0,3- 1,0 | with auxiliary spring | | | | | | | |

Testoil-ISO 4113
C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ | | ④a Idle stop | |
|-----------------------------|-----------------------|-----------------------------|--|----------------------------------|-----------------------|-----------------------------|-----------------------|--------------|--|--------------|--------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | | rev/min 9 | Control rod travel mm 10 |
| See page 1 | | 1240-1250* | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 348 - 321 R | 0,41 | | 12,3 - 12,4 |
| 348 - 408 R) | | 0,20 | 11,8 - 11,9 |
| | | 0,17 | 11,3 - 11,5 |
| | | 0 | 11,0 - 11,1 |
| | | | |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

En

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4
1. Edition

En

PE 6 P 100 A 720 RS 414

RSV250-1175 P1/473

supersedes -
company FBW
engine C u 6 A

1 - 5 - 3 - 6 - 2 - 4
0 - 60-120-180-240-300

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,75-2,95)

Port closing at prestroke 2,80-2,90

mm (from BDC) RW 10,5

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1175 | 12,4 | 12,6-13,0 | 0,5(0,8) | | | |
| 250 | +0,1 | | 0,8(1,2) | | | |
| 600 | 8,3-8,5 | c, Sp 4-5 | 0,7(1,0) | | | |
| 600 | - - - - | c, Sp.4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 100se | 800 | 0,3-1,0 | | | | ca.22 | 250 | 8,4 | | |
| | | | | | | | 250 | 8,8-9,0 | | |
| | | | | | | | 495-555 | =2,0 | | |
| | | | | | | | | | | |
| ca.61 | 1215-1225 | =11,4 | | | | | | | | |
| | 1290-1320 | = 4,0 | | | | | | | | |
| 2a | 1450 | = 0,3-1,7 | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| (2b) Full-load stop Test oil temp. 40°C (104°F) | | (6) Rotational-speed limit Note: changed to) rev/min | | (3a) Fuel delivery characteristics | | Starting fuel delivery Idle (5) | | (4a) Idle stop | |
|---|---|---|--|---|---|---|------------------------------------|-----------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1175 | 0,7 bar 126,0-130,0 (123,0-133,0) | | | LDA 600 | 0,7 bar 119,0-123,0 (116,0-126,0) | 100 | 150,0-170,0 | 250 | 8,9 |

Checking values in brackets

* 1 mm less control rod travel than col 2

11.80

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D13

D43

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|---------------|---------------------------------|-------------------------------------|--|
| 414 - 473 | 0,7 bar | 0,35 0,25 0 | 12,5 - 12,6 12,4 - 12,5 12,0 - 12,1 11,6 - 11,7 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 PEN 7,0 d

1. Edition

En

PE 6 P 110 A 320 RS 374 RSV 200-1200 P 1/305R (1)
200-1000

supersedes Volvo-Penta
company TMD 70 C (1)
engine MD 70 G (2)

Setting values for the governor

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,95-3,15) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1200 | 10,5 | 9,1 - 9,3 | 0,4(0,8) | 10,5 | 9,3 - 9,5 | n = 1000 |
| 200 | +0,1 8,6-8,7 | 1,7 - 2,7 | 0,4(0,7) | +0,1 8,6-8,7 | 1,7 - 2,7 | 2,5±0,1** (max.2,2-2,9) |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

200-1200 (1)

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | | | | ca.26 | 200 | 8,1 | | |
| | x = 5,2 | | | | | | 100 | min.20 | | |
| ca.68 | 9,5 | 1240-1250 | | | | | 200 | 8,6-8,7 | | |
| 2a | 4,0 | 1295-1325 | | | | | 390-460 | =2,0 | | |
| | 1400 | 0,3- 1,7 | | | | | 550 | 0-1 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 4a Idle stop | |
|-----------------------------|------------------------------------|--------------------------|--------------|------------------------------------|--------------|------------------------------------|--------------|-------------------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to) | | | | | | | |
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| 1200 | 91,0 - 93,0 (88,0 - 96,0) | 1240-1250* | | | | 200 | 19,0-29,0 | | |
| | | | | | | 1310 | 4,0-4,1mm | RW | |
| | | | | | | dispersion | max.4 (9) | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

5.79

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B. Governor Settings

200-1000

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | | | | | | | |
|--|--------------------------|----------------------------------|--------------------------|---|---|--|---------|--------------------------|------------------|--------------------------|--|--|-----|---------|--|--|
| Degree of deflection of control lever 1 | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees 7 | rev/min | Control rod travel mm | rev/min | Control rod travel mm | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | | | | | | |
| loose | 800 | 0,3-1,0 | | | | ca.22 | 200 | 8,1 | | | | | | | | |
| | x | = 4,3 | | | | | | | | | | | | | | |
| ca.53 | 9,5 | 1040-1050 | | | | | | | | | | | 100 | min.20 | | |
| | 4,0 | 1095-1125 | | | | | | | | | | | 200 | 8,6-8,7 | | |
| | 1200 | 0,3-1,7 | | | | | 390-450 | = 2,0 | | | | | | | | |
| ②a | | | | | | | 550 | 0 - 1 | | | | | | | | |

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ Idle | | ④a Idle stop | |
|-----------------------------|--------------------------|-----------------------------|---------|----------------------------------|---------|-------------------------------|---------------------------------------|-----------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1000 | 93,0-95,0 (90,0-98,0) | 1040-1050* | | | | 200 | 19,0-29,0 | | |
| | | | | | | 1110 | 4,0-4,1 mm RW dispersion max.4 (9) | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|--------------------------|----------------------------------|--------------------------|---|---|--|---------|--------------------------|------------------|--------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm | Control rod travel mm rev/min | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| | | | | | | | | | | |
| | | | | | | | | | | |
| ②a | | | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ Idle | | ④a Idle stop | |
|-----------------------------|------------------|-----------------------------|---------|----------------------------------|---------|-------------------------------|---------|-----------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4
1. Edition

En

PES 6 P 110 A 720 RS337 EP/RSV 400-1050 P 0/416DR

dimension H = 28,0 mm

supersedes -
company John Deere
engine 6619 T

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{2,80-2,90}{(2,75-2,95)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1050 | 10,2 | 13,5 - 13,7 | 0,4 | | | |
| 400 | 6 | 2,1 - 2,7 | 0,4 | | | |

Port closing mark cyl. 1 : 14° after port closing

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca. 39 | 1050 1100 1150 | 15,6-16,2 8,4-10,8 3,6- 5,6 | without auxiliary spring | | | ca. 20 | 400 | 6,8 | 1050 | 0 |
| 2a | 1200 | 0,3- 2,9 | | | | with auxiliary spring | 100 | 19 - 21 | 750 | 0 |
| | 1250 | 0,3- 1,5 | | | | | 400 | 6,8 | 630 | 0,5 |
| | | | | | | | 520-580 | 2 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|----------------------------|------------------------------------|------------------------------|--------------|------------------------------------|--------------|------------------------------------|--------------|-------------------------------|--|
| Test oil temp 40°C (104°F) | | Note: changed to ... rev/min | | | | | | | |
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| LDA | 1,0 bar | 1095-1105 | 1150 | 45 - 55 | 100 | min 190 | 400 | 21,0-27 | |
| 1050 | 135-137 | (1090-1110) | | | | | | cm ³ /1000 Strokes | |
| 630 | 145-149 | | | | | | | | |
| 550 | 114-122 | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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3,78

Testoil-ISO 4113

E1

EA

D. Adjustment Test for Manifold Pressure Compensator

Ppe 337 -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXX

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|--|---------------------------------|-------------------------------------|---|
| Manifold-pressure compensator setting | 0,68-0,72 | 0,16-0,24 | |
| Switching point | max. 0,76 | min. 0,48 | |
| | | | |

Notes:

(1) when n = rev/min and gauge pressure = b3r (= maximum full-load control rod travel)

unlocking n=350-450/min

Testoil-ISO 4113

③

Test Specifications Fuel Injection Pumps and Governors

40

WPP 001/4 SCA 11,0 k 2

1. Edition

En

PE 6 P 90/720 RS 147, 206 EP/MZ 80 P 3 R

RS 149, 205 EP/MZ 80 P 4 R

Port-closing test with/without ROBO diaphragm I

supersedes

~~SCA 11,0 k (7,71)~~

company

Scania

engine

D 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6 + 0,1 mm (from BDC) $\begin{pmatrix} +0,15 \\ -0,05 \end{pmatrix}$

Testoil-ISO 4113

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|-----------------------------|---|--|-----------------------------|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1000 | 12 | 8,5 - 9,2 | 0,4 | | | 2,5±0,1* (max. 2,2-2,9) |
| 600 | 9 | 2,9 - 3,9 | | | | |
| | 12 | 7,4 - 8,4 | | | | |
| | 15 | 12,2 - 13,5 | | | | |
| 200 | 9 | 1,8 - 2,8 | | | | |

Adjust the fuel delivery from each outlet according to the values in

In the case of greater dispersion alter the delivery-valve spring pre-tension

B. Governor Settings

EP/MZ ... 3R, 4R

| Leakage | | | Control-rod travel limitation breakaway* | | Control rod travel test | | Auxiliary spring auxiliary cam** | | Torque control | |
|--------------------------------|--|-----------------------|--|-----------------------------|---------------------------------|---|-------------------------------------|-----------------------------|-------------------|-----------------------------|
| Torque control travel mm | Vacuum pressure drop mm water col. | Time at least s | Vacuum mm w.c. | Control rod travel mm | Vacuum mm w.c. | Control rod travel mm | Vacuum mm w.c. | Control rod travel mm | Vacuum mm w.c. | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| - | 2000- 1700 | 10 | - | - | 335 370 400 440 480 | 3,5-14,5 7,8-11,4 4,4-6,6 3,7-6,0 3,0-5,3 | 415 | 4,1-6,3 | - | - |

control rod travel test (cols. 4-11)
= rotational speed 500 rev/min.
adjust breakaway (cols. 4-5) by means of shims*
cam adjustment (B 8-9 - C 7-8) by means of shims**

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load stop screw Test oil temp. 40°C (104°F) | | | Fuel delivery characteristics | | | idle (stop)** idle (imbalance) | | Control rod travel from full-load to idle |
|---|------------------------|-------------------------------|-------------------------------|------------------------|-------------------------------|---|------------------------|---|
| rev/min | Vacuum mm wat. col. | cm ³ /1000 strokes | rev/min | Vacuum mm wat. col. | cm ³ /1000 strokes | rev/min | Vacuum mm wat. col. | mm cm ³ /1000 strokes |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | 8 |
| 1080 | 0 | 142,0-144,0 (140,0-146,0) | 600 | 0 | 135,0-139,0 (133,0-141,0) | start 100 225 dispersion max. 1200 dispersion max. | | 190-240 9-11 1,5 16-22 4 |

Checking values in brackets

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E3

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6s 1

1. Edition

En

PE 6 P 100 A 320 RS 384 Z RQ 250/1100 PA 574

supersedes -
company: DAF
engine: DKL 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,2 - 3,3

mm (from BDC)

RW 9 mm FB Diff. 9 mm

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 600 | 11,5 | 10,9 - 11,2 | 0,5 | | | |
| 1050 | +0,1 10,8-11,1 | 10,6 - 11,1 | | | | |
| 225 | 7,2-7,4 | 1,0 - 1,4 | 0,3 | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PPG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|--------------------------|----------------------------|--------------------------|--------------------------|-----------|-----------------------|--------------------------|---------------|--------------------------|---------------------|--------------------------|---------|--------------------------|---|--|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | |
| 700 | 15,6-16,4 | 700 | 16,0 | 10,8 | 1140-1155 | 225 | 7,3 | 100 | min.7,5 | | | | | | |
| | | | | 4,0 | 1175-1205 | | | 225 | 7,2-7,4 | | | | | | |
| 1400 | 0 - 1 | | | | | | | 325-600 | 365=2,0 0 - 1 | | | | | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | | Fuel delivery characteristics | | Starting fuel delivery idle speed | |
|--|-------------------------------------|------------------|----|-------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | ② | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 1050 | 106,5-111,5 (104,0-114,0) | | ③a | 600 | 109,5-112,5 (108,0-113,0) | 100 | 21,5 19,5-21,0 RW |
| | | | | | | 225 | 7,2 |

Checking values in brackets

11.80

Testoil-ISO 4113

E8
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②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 DAF 11,6 s 2
1, Edition

En

PE 6 P 100 A 320 RS 384 y RQ 300/1100 PA 574

supersedes -
company: DAF
engine: DKL 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,2 - 3,3 mm (from BDC) RW 9 mm FB.Diff 9 mm RW

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 600 | 11,5 | 10,9-11,2 | 0,5 | | | |
| | +0,1 | | | | | |
| 1050 | 10,8-11,1 | 10,6-11,1 | | | | |
| 225 | 7,2-7,4 | 1,0- 1,4 | 0,3 | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | Test specifications Control rod travel mm 5 rev/min 6 | | Idle speed regulation Setting point rev/min 7 | | Test specifications Control rod travel mm 9 rev/min 10 | | Torque control rev/min 11 Control rod travel mm 12 | |
|---|-----------|---|------|---|-----------|--|-----|--|---------|--|--|
| 700 | 15,6-16,4 | 700 | 16,0 | 10,9 | 1140-1155 | 225 | 7,3 | 100 | min.7,5 | | |
| | | | | | | | | 225 | 7,2-7,4 | | |
| 1400 | 0 - 1 | | | 4,0 | 1175-1205 | | | 325-365 | 2,0 | | |
| | | | | | | | | 600 | 0 - 1 | | |

Torque-control travel on flyweight assembly dimension a = mm Speed regulation: At 1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 cm ³ /1000 strokes 2 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 cm ³ /1000 strokes 5 | | Starting fuel delivery Idle speed rev/min 6 cm ³ /1000 strokes/mm 7 | |
|---|------------------------------|----------------------------------|--|---|----------------------------------|---|----------------------|
| 1050 | 106,5-111,5 (104,0-114,0) | | | 600 | 109,5 - 112,5 (108,0 - 114,0) | 100 | 21,5 19,5-21,0 RW |
| | | | | | | 225 | 7,2 |

Checking values in brackets

11.80

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

VDT-WPP 001/4

2. Edition

En

PES 6 P 100 A 720 RS 1010 EP/RSV 400-1050 P2/411D

P2/412D

P7/413D

supersedes

company

engine

John Deere
6531

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,4 + 0,1 mm (from BDC) (+0,15
-0,05)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 12,7 - 13,4 | 0,5 | | | |
| 600 | 9 | 5,6 - 6,8 | | | | |
| | 12 | 11,6 - 13,2 | | | | |
| | 15 | 17,2 - 19,0 | | | | |
| 200 | 9 | 4,0 - 5,2 | | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

EP/RSV .. P2/411D

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|-----------------------------|---|---|--|-------------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca. 38 | 1040 1080 1220 | 16,0 11,5 4,6 | without auxiliary spring | | | ca. 17 | 400 | 7,2 | 1050 | 0 |
| 2a | 1050 1155 1280 | ca. 11,0 ca. 4,7 0,3-1,0 | | | | | 200 400 550 | 19 - 21 6,9-7,5 3,2-5,1 | 800 | 0,6-0,8 |
| | | | with auxiliary spring | | | | 780 | 0 - 1 | 500 | 0,8-1,0 |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) | | 6 Rotational-speed limitat Note: changed to) rev/min | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|--|---|--|------------|---|-------------------------------|--------------------------|------------------------------------|--------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | 4 | rev/min 5 | cm ³ /1000 strokes | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1050 | 0,9 bar 142,0-144,0 (140,0-146,0) | 1085-1095* | LDA 750 | 0,9 bar 156,0-160,0 (154,0-162,0) | | 400 | 21,0-27,0 (19,0-29,0) | | |
| | | | LDA | 0 bar | | 1155 | 24,0-44,0 (22,0-46,0) | | |
| | | | 500 | 108,0-116,0 (106,0-118,0) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

1.77

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E10

E10

B. Governor Settings

EP/RSV ..P2/412D

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|-----------------------------|---|-----|--|--------------|-------------------------------|--------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca. 38 | 1040 | 16,0 | without auxiliary spring | | | ca. 17 | 400 | 7,2 | 1050 800 500 | 0 0,6-0,8 0,8-1,0 |
| | 1080 | 11,2 | | | | | 200 | 19 - 21 | | |
| | 1120 | 5,2 | | | | | 400 | 6,9-7,5 | | |
| | 1050 | ca. 10,6 | with auxiliary spring | | 550 | | 3,3-5,1 | | | |
| ②a | 1100 | ca. 4,7 | | | | | 780 | 0 - 1 | | |
| | 1280 | 0,3-1,0 | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ | | ④a Idle stop | |
|-----------------------------|-----------------------|-----------------------------|--|----------------------------------|------------------------------|--------------------------|-----------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | Idle | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA | 1,0 bar | 1085-1095* | | LDA | 1,0 bar | 400 | 21,0-27,0 | | |
| 1050 | 151,0-153,0 | | | 750 | 163,0-167,0 (161,0-169,0) | | | | |
| | | | | LDA | 0 bar | | | | |
| | | | | 500 | 108,0-116,0 (106,0-118,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

EP/RSV .. P7/413D

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | | |
|--|-------------------------------|---------------------------------------|-----------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|-----|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 | |
| ca.66 | 1040 | 16,0 | without auxiliary spring | | | ca.28 | 400 | 7,0 | 1040 | 0 | |
| | 1080 | 9,0 | | | | | 150 | 19 - 21 | | | |
| | 1110 | 3,2 | | | | | 400 | 6,7-7,3 | | | |
| | 1050 | ca.13,2 | with auxiliary spring | | | | 500 | 3,2-5,9 | | | 500 |
| 1110 | ca. 5,2 | 660 | | | | | 0 - 1 | | | | |
| 1220 | 0,3-1,0 | | | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ | | ④a Idle stop | |
|-----------------------------|-----------------------|-----------------------------|--|----------------------------------|-----------------------|--------------------------|-----------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | Idle | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1050 | 151,0-153,0 | 1065-1075* | | 750 | 163,0-167,0 | 400 | 21,0-27,0 | RW | |
| | | | | | | 1115 | 4,5-5,5mm | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Ppe 1010

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

-3-

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|---|--------------------------------------|--|---|
| 1010 + 411D | 0,55 | 0,20 | 0,1 - 0,3 mm 1,8 - 2,0 mm |
| 1010 + 412D | 0,63 | 0,20 | 0,1 - 0,3 mm 2,2 - 2,4 mm |
| hydraulic 1010 + 411D 1010 + 412D | Locking at max. 0,76 max. 0,76 | Unlocking at min. 0,45 min. 0,48 | |

Notes:

(1) when n = 750 rev/min and gauge pressure = 1,0 bar (= maximum full-load control rod travel)

Preliminary adjustment, dimension H - 411D = 32,8 mm
- 412D = 33,3 mm

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

Wpp 001/4 VOL 7,0 e

5. Edition

PE 6 P 110 A 320 RS 367 RQV 250-1200 PA394/2R (1)
RS 367Z PA394/2R (2)
RS 367Y PA394/2R (3)

supersedes 4.79
company: Volvo
engine: TD 70 F
(1-174kW-237PS)
(2-155kW-210PS)
(3-180kW-245PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $\frac{3,00-3,10}{(2,95-3,15)}$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 700 | 11,9 + 0,1 | 12,1 - 12,3 | 0,4(0,8) | 10,9 +0,1 | 10,0 - 10,2 | 2,5± 0,1** (max.2,2-2,9) |
| 250 | 4,7-4,8 | 0,9 - 1,3 | 0,4(0,6) | 4,7-4,8 | 0,9 - 1,3 | |
| 700 | - - - | C, 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in

In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | (1) Sliding sleeve travel | |
|---|---|---|---|--------------|----------------------------------|---|------------------------------|-----------------------------------|------------------------------|----------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca.68 | 1200 1500 | 15,2-17,8 0 - 1 | | | | ca.12 | 100 250 420-470 600 | min.6,3 4,7-4,9 =2,0 0-1 | 200 1230 | 0,3-1,2 8,2 |
| ca.68 | 10,9 4,0 | 1260-1270 1370-1400 | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control ⑤ travel Control rod travel mm | |
|---|---|---|--|------------------------------------|---|--|--|---------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | mm 9 |
| (1) 700 | LDA 0,7 bar 121,0-123,0 (118,0-126,0) | 1260-1270* | LDA 700 | 0 bar 78,5-80,5 (75,5-83,5) | 100 250 | 165 - 200 11-15 dispersion .max.3)** | | |

Checking values in brackets

*1 mm less control rod travel than col. 2
4.80

Testoil-ISO 4113

B. Governor Settings

367Z (2)

VOL 7,0 e

-2-

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|------------|-----------------------|-----------------------|----------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1200 1450 | 15,2-17,8 0 - 1 | - | - | - | ca. 12 | 100 250 | min. 6,5 4,7-4,8 | 200 1230 | 0,3-1,2 8,2 |
| ca. 67 | 9,9 4,0 | 1265-1275 1360-1385 | | | | | 600 | 0-1 | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|--|---|--|-----------------------------------|--|---------------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 700 | LDA 0,6 bar 100,0-102,0 (97,0-105,0) | 1265-1275* | LDA 700 | 0 bar 78,5-80,5 (75,5-83,5) | 100 250 | 165-200 11- 15 dispersion max.3 | ** | |

Check values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

367Y (3)

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|------------|-----------------------|-----------------------|----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1200 1450 | 15,2-17,8 0 - 1 | | | | ca. 12 | 100 250 | min. 6,3 4,7-4,8 | | |
| ca. 68 | 11,3 4,0 | 1240-1250 1322-1390 | | | | | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------------|---|--|-----------------------------------|--|--|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 700 | 0,7 129,0-131,0 (126,0-134,0) | 1240-1250* | LDA 700 | 0 bar 78,5-80,5 (75,5-83,5) | 100 250 | 165,0-200,0 11-15** dispersion max.3 | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

D. Adjustment Test for Manifold Pressure Compensator

VOL 7,0e -2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|---------------|---------------------------------|-------------------------------------|---|
| 367 - 394/2R | 0,48 | 0,27 | 11,5 - 11,6 10,3 - 10,5 |
| 367 - 394/2R | 0,37 | 0,24 | 10,6 - 10,7 9,9 - 10,1 |
| 367 - 394/2R | 0,53 | 0,26 | 11,8 - 11,9 10,3 - 10,5 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

3. Edition

En

PE6P110A720RS 368
RS 380

RQV 250-1050 PA 240 R (1)
250-1100 PA 434 R (2)
250-1100 PA 503

supersedes
company:
engine:

6.79
Chrysler
BSS36

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,80-2,90
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1050 | 14,5-14,5 | 16,6-16,8 | 0,4(0,8) | 15,5-15,6 | 18,6-18,8 | n = 1100 |
| 250 | 8,7-8,9 | 2,2- 2,8 | 0,4(0,7) | 8,5-8,7 | 2,2- 2,8 | |
| 1050/1100 | - | C, 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

240 R (1)

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|-----------------------|-----------------------------|-----------------------|-----------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1050 1400 | 15,2-17,8 0 - 1 | - | - | - | ca. 13 | 100 250 490-555 | min. 10,3 8,7-8,9 2,0 | 250 500 1080 | 1,1 4,0-4,2 7,6 |
| ca. 62 | 13,5 4,0 | 1090-1100 1230-1260 | | | | 350-500 (3a) | 700 | 0 - 1 | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|---|--|-------------------------------|--|-------------------------------|--|-------------------------------|--------------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| LDA 1050 | 0,7 bar 166,0-168,0 (163,0-171,0) | 1090-1100* | LDA 1050 | 0 bar 127,0-131,0 (124,0-134,0) | 100 | 19,5-21,0 | | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--------------|------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|--|-------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1180 1400 | 15,2-17,8 0 - 1 | - | - | - | ca. 18 | 100 250 470-530= 2,0 750 340-460 | min. 10,1 8,5-8,7 0 - 1 | 250 800 1140 | 1,6-1,8 5,4-5,6 8,2 |
| ca. 65 | 14,5 4,0 | 1140-1150 1290-1320 | | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|---|---|-------------------------------|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| LDA 1100 | 0,9 bar 186,0-188,0 (183,0-191,0) | 1140-1150* | LDA 1100 | 0 bar 134,0-138,0 (131,0-141,0) | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
xxxxxxx

| Pump/governor | Setting | Measurement | Control rod travel-diminution difference |
|---------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm |
| 368 - 240 R | 0,68 | 0,50 0,36 0 | 14,5 - 14,6 14,0 - 14,1 12,9 - 13,2 12,6 - 12,7 |
| 380 - 434 R | 0,90 | 0,68 0,48 0 | 15,5 - 15,6 15,0 - 15,1 13,7 - 13,9 13,2 - 13,3 |

En

1.80

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|--------------------------|-----------------------|-----------------------|----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1180 1400 | 15,2-17,8 0 - 1 | - | - | - | ca. 18 | 100 250 | min. 10, 8,5-8,7 | | |
| ca. 65 | 14,5 4,0 | 1140-1150 1280-1320 | | | | | 500-560 = 2,0 340-460 | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | Starting fuel delivery Idle switching point | Torque-control travel |
|---|---|--|---|---|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 6 | 5 |
| LDA 1100 | 0,9 bar 186,0-188,0 (183,0-191,0) | 1140-1150 | LDA 1100 | 100 (80) | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting | Measurement | Control rod travel-diminution difference |
|---------------|----------------------|--------------------|--|
| | Gauge pressure = bar | Gauge pressure bar | mm |
| 380 - 503 | 0,90 | 0,68 0,475 0 | 15,5 - 15,6 15,0 - 15,1 13,5 - 13,7 12,9 - 13,0 |

En

1.80

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 720 RS 3005 RQV 250-1100 PA 183 R
RS 3007 RQV 250-1100 PA 229R
RS 3005 EP/RSV 350-1100 P1/310 R

supersedes 11.74
company: Scania
engine: D 11

Z..1 See page 3!

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 + 0,1 mm (from BDC) +0,15
-0,05

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|-----------------------------|---|--|-----------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 12 | 12,4 - 13,0 | | | | 2,5±0,1** (max.2,2-2,9) |
| 600 | 9 | 5,8 - 6,8 | | | | |
| | 12 | 11,9 - 13,2 | | | | |
| 200 | 15 | 17,1 - 18,6 | | | | |
| | 9 | 3,4 - 4,3 | | | | |

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion alter the delivery-valve spring pre-tension

B. Governor Settings

RQV ... 183

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|---------|-----------------------------|--|--------------------------|------------------------------------|-----------------------|-----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca .66 | 1120 1200 1300 1400 | 15,0-17,6 9,2-13,6 1,0- 7,6 0 | - | - | - | ca .10 | 150 250 400 500 | 6,5-8,0 3,6-6,1 1,1-2,4 0 | 1200 | 8,3 |
| | | | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|-------------------------------|--|--|-------------------------------|---|-------------------------------|--------------------------|-----------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 135,0-137,0 | 1135-1145* | 600 | 132,0-136,0 | 100 | 190 - 240 | | |
| | | | 1200 | 43,0- 53,0 | 225 | 12 - 16)** | | |
| | | | dispersion max.4 | | dispersion max.2)** | | | |
| (increase by 2,0 cm ³) | | | | | | | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

RQV .. 229 - 3007

SCA 11,0 n

-2-

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|--|---------------------------------------|---------|-----------------------|---------------------------------------|--------------------------|------------------------------------|-----------------------|-----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca .66 | 1120 1200 1300 1410 | 15,0-17,6 9,2-13,6 1,0- 7,6 0 | - | - | - | ca .10 | 150 250 400 500 | 6,5-8,0 3,6-6,1 1,1-2,4 0 | 1120 | 8,3 |
| | | | | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|--------------------------------|--|--|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 135,0-137,0 | 1135-1145* | 600 | 132,0-136,0 | 100 | 190 - 240 | | |
| | | | 1200 | 43,0- 53,0 dispersion max.4 | 225 | 8 - 12 ^{**} dispersion max.2 | | |

ing values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV 350-1100 P1/310 - 3005

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|----------------------------------|-----------------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|--------------------------|--|-----------------------|----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca .67 | 1100 1150 1200 | 16,0 11,7 6,0 | without auxiliary spring | - | | ca .31 | 350 | 6,0 | 1080 | 0 |
| | 1150 1200 1350 | 10,4-12,5 4,4- 7,8 0,3- 1,0 | | | | | 100 350 400 500 | 19 - 21 5,7-6,3 3,2-4,7 0 - 1 | | |
| | | | with auxiliary spring | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|---|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1100 | 135,0-137,0 | 1135-1145* | 600 | 132,0-136,0 | 100 | 190 - 240 | | |
| | | | | | 350 | 8 - 12 ^{**} dispersion max. 2 | | |
| | | | | | 1200 | 38,0-48,0 | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-1 . 113

Output variation

| Index | % | n = U/min | Q = cm ² /1000 | n = U/min | Q = cm ³ /1000 | Adjustment of control-rod position from 100% setting mm |
|-------|-----|-----------|---------------------------|-----------|---------------------------|--|
| T | 103 | 1100 | 138 ± 1,0 | 600 | 136 ± 2,0 | + 0,2 |
| X | 95 | 1100 | 126 | 600 | 124 | - 0,5 |
| Q | 93 | 1100 | 122 | 600 | 120 | - 0,7 |
| Z | 90 | 1100 | 117 | 600 | 113 | - 1,0 |
| O | 88 | 1100 | 114 | 600 | 108 | - 1,2 |
| N | 85 | 1100 | 111 | 600 | 104 | - 1,4 |
| M | 80 | 1100 | 106 | 600 | 96 | - 1,7 |
| L | 75 | 1100 | 99 | 600 | 86 | - 2,1 |
| K | 70 | 1100 | 94 | 600 | 76 | - 2,5 |
| J | 65 | 1100 | 89 | 600 | 68 | - 2,8 |
| I | 60 | 1100 | 83 | 600 | 59 | - 3,3 |

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 FBW 11,9 b

1. Edition

En

PE 6 P 120 A 721 RS 439

RQV 250-1025 PA 608

supersedes -

company: FBW

engine: E 5 A/EU 5 A
206 kW (280 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{3,0-3,1}
(2,95-3,15) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 10,8+0,1 | 19,6 - 20,0 | 0,5(0,8) | | | |
| 250 | 7,4-7,5 | 3,5 - 4,1 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|-----------------|-------------------------------|-----------------------|--------------------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1060 | 15,2-17,8 | - | - | - | ca. 13 | 100 250 | min. 8,5 7,4-7,5 | 200 475 750 | 0,7-0,9 2,6-2,9 4,6-4,8 8,0 |
| ca. 46 | 9,8 4,0 1240 | 1065-1075 1110-1140 0 - 1,0 | | | | 3a | 410-460 = 2,0mm | | 1075 | |

Torque control travel a = 0,4 mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control ⑤ | |
|---|---|---|---|---|--|------------------------------------|---------------------------|--|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1000 | 0,7 bar 196,0-200,0 (193,0-203,0) | 1065-1075* | LDA 600 | 0,7 bar 174,0-180,0 (172,0-182,0) | 100 | 150,0-170,0 | 1000 500 900 700 | 10,8+0,1 11,4+0,3 10,8+0,3 11,2+0,2 |
| | | | LDA 600 | 0 bar 126,0-130,0 (123,0-133,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

BOSCH

Geschäftsbereich KM, Kundendienst, Kfz-Ausrüstung.
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10.81

Testoil-150 4113

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

FBW 11,9 b

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|----------------------------|---------------------------------|-------------------------------------|---|
| PE6P..RS 439 - ..PA 608 | 0,7 | 0 0,5 0,4 | 11,5 - 11,6 9,4 - 9,5 10,9 - 11,1 10,2 - 10,5 |

Notes:

(1) when n =

rev/min and
gauge pressure =

1 bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VOL 12,0 h

2. Edition

En

PE 6 P 120 A 320 RS 3074 RQV 250-1100 PA 564

supersedes

company:

engine:

6.81

Volvo

TD 120 F

283 kW(385 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (2,35-2,55) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 13,6+0,1 | 24,1-24,4 | 0,5(0,9) | | | 2,5 ± 0,1 (max.2,5-2,9) ** |
| 250 | 4,3-4,5 | 2,3- 2,7 | 0,5(0,8) | | | |

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion after the delivery-valve spring pre-tensioning accordingly.

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------|-----------------------|-----------------------|---------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| max. | 1100 | 15,2-17,8 | - | - | - | ca.11 | 100 | min.6,0 | 200 | 1,1-1,4 |
| ca.62 | 12,6 | 1140-1150 | | | | | 250 | 4,3-4,5 | 500 | 3,3-3,5 |
| | 4,0 | 1235-1265 | | | | | | | 800 | 5,1-5,3 |
| | 1350 | 0 - 1,0 | | | | | | | 100 | 8,1 |
| | | | | | | 260-355 | | | | |
| | | | | | | ③a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | Starting fuel delivery/ idle switching point | Torque-control travel |
|---|-------------------------------|--|--|--|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | rev/min |
| 1 | 2 | 3 | 4 | 6 | 8 |
| LDA | 1,2 bar | 1140-1150* | LDA | 100 | - |
| 700 | 241,0-244,0 (238,0-247,0) | | 0 bar 148,0-152,0 (145,0-155,0) | 288,0-308,0 / 16,5-17,5 mm RW | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

11.91

Test... 4113

BOSCH

 Geschäftsbereich KH, Kundendienst, Kfz-Ausrüstung.
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G19

C13

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure increasing

VOL 12,0 h

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|-------------------------------|---------------------------------|-------------------------------------|--|
| PE 6 P..RS 3074 - ..PA 564 | 1,2 | 0 0,67 0,23 | 13,6 - 13,7 9,8 - 9,9 12,5 - 12,7 10,7 - 10,8 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

WPP 001/4

4. Edition

En

PE 6P 110 A 720 RS 368 RQV 250-1050 PA 240R

1 - 5 - 3 - 6 - 2 - 4 je 60°

supersedes

1.80

company:

Chrysler

engine:

BS 36

202kW (275PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,75-2,95)

Port closing at prestroke

2,80-2,90

mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ / 100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|-----------------------------|---|--|-----------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1050 | 14,5-14,6 | 16,6-16,8 | 0,4(0,8) | | | |
| 250 | 8,7-8,9 | 2,2- 2,8 | 0,4(0,7) | | | |
| 1050 | - | C,Sp. 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|---------|-----------------------------|--|----------------------------|-----------------------------|-----------------------|----------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1050 1400 | 15,2-17,8 0-1 | - | - | - | ca. 13 | 100 250 | min. 10,3 8,7-8,9 | 250 600 | 1,1 4,0-4,2 |
| ca. 62 | 13,5 4,0 | 1090-1100 1230-1260 | | | | 350-500 ③a | 495-555 = 2,0 700 0 - 1 | | 1080 | 7,6 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | Starting fuel delivery idle switching point | Torque-control | |
|---|---|--|--|---|----------------|-----------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | rev/min | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 6 | 8 | 9 |
| LDA 1050 | 0,7 bar 166,0-168,0 (163,0-171,0) | 1090-1100* | LDA 1050 | 0 bar 127,0-131,0 (124,0-134,0) | 100 | 19,5-21,0 |

Checking values in brackets

* 1 mm less control rod travel than col. 2

4.80

BOSCH

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D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting | Measurement | Control rod travel - diminution difference |
|---------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 368 - 240R | 0,68 | | 14,5 - 14,6 |
| | | 0,50 | 14,0 - 14,1 |
| | | 0,36 | 12,9 - 13,2 |
| | | 0 | 12,6 - 12,7 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 MB 11,8 1

3. Edition

En

PE 6 P 110 A 720 RS 371 RQV 300-1100 PA 455 R

supersedes

8.81

company:

Daimler-Benz

engine:

OM 355 A

206 kW(280 PS)

1 - 5 - 3 - 6 - 2 - 4

0 -60-120-180-240-300° ± 0,5 (±0,75°)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(2,75-2,95)

Port closing at prestroke

2,80-2,90

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 1100 | 11,7 | 16,0-16,2 | 0,4(0,8) | | | |
| | +0,1 | | | | | |
| 300 | 5,9-6,1 | 1,1 - 1,7 | 0,4(0,7) | | | |
| 600 | 11,7+0,1 | C,Sp. 4 - 5 | 0,6(1,0) | | | |
| 500 | 11,0+0,1 | C,Sp. 4 - 5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---|---|---|---|--------------|----------------------------------|---|--------------|----------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1100 | 15,2-17,8 | | | | ca. 17 | 100 | min. 7,7 | 250 | 0,9-2,0 |
| | | | | | | | 300 | 6,1-6,3 | 550 | 4,1-4,5 |
| | | | | | | | 430-500 | =2,0 | | 5,5-5,9 |
| ca. 66 | 10,7 | 1140-1150 | | | | | | | | 8,2 |
| | 4,0 | 1225-1255 | | | | | | | | |
| | 1350 | 0 - 1,0 | | | | | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed ②b limitation intermediate speed ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery ⑥ idle switching point | | Torque-control ⑤ travel Control rod travel mm | |
|---|---|--|--|---|--|-----------------------|---|----------------------------|
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1100 | 0,7 bar 160,0-162,0 (157,0-165,0) | 1140-1150* | LDA 600 | 0,7 bar 155,0-159,0 (152,0-162,0) | 100 | 140,0-160,0 | | |
| | | | LDA 500 | 0 bar 132,0-136,0 (131,0-139,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.82

BOSCH

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H1

4A

D. Adjustment Test for Manifold Pressure Compensator

-2-

MB 11,8 1

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing pressure - in bar gauge pressure
XXXXXX

| Pump/governor | Setting | Measurement | Control rod travel - diminution difference |
|---------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 371 - 455 R | 0,7 bar | 0,39 0,35 0 | 11,7 - 11,8 11,5 - 11,6 11,2 - 11,3 11,0 - 11,1 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 RVI 8,8 e

1. Edition

En

PES 6 P 120 A 320 RS 406

RQV 250-1100 PA 495

supersedes -

company:

RVI

engine:

MIDS 062030

188 kW (256 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

 Port closing at prestroke ^{2,8-2,9}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 1100 | 9,9+0,1 | 19,0-19,4 | 0,5(0,8) | | | |
| 250 | 4,0-4,2 | 1,7- 2,3 | 0,8(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---|---|---|---|--------------|----------------------------------|---|--------------|----------------------------------|--------------------------|--------------------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1100 1350 | 15,2-17,8 0 - 1,0 | | | | ca. 10 | 100 250 | min. 5,6 4,0-4,2 | 200 500 800 100 | 0,7-1,0 3,4-3,6 4,8-4,9 6,8 |
| ca. 66 | 8,9 4,0 | 1140-1150 1180-1210 | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) (2) | | Rotational-speed (2b) limitation intermediate speed | Fuel delivery characteristics (5a) High idle speed (5b) | Starting fuel delivery (6) Idle switching point | Torque-control (5) travel | Control rod travel mm | | |
|---|---|---|--|---|------------------------------|-----------------------------|--------------|---------|
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | mm 9 |
| LDA 1100 | 0,7 bar 190,0-194,0 (187,0-197,0) | 1140-1180* | LDA | 0 bar 141,0-145,0 (138,0-148,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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H9

H9

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXXXXX

RVI 8,8e

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|------------------------|---------------------------------|-------------------------------------|--|
| ..RS 406 - --PA 495 | 0,7 | 0,33 0,27 0 | 9,9 - 10,0 9,4 - 9,5 8,3 - 8,4 8,0 - 8,1 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 120 A 320 RS3048 RQV 250-1100 PA414/2R (1)
PE 6 P 120 A 320 RS3046 EP/RSV 200-900 P 4/421R (2)

supersedes -
company: Volvo
engine: T(M)D 120 C

Testing with T nozzles and fuel lines 8x2x1000

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,60-2,70
(2,55-2,75) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 12,3 +0,1 | 21,8-22,1 | 0,4(0,8) | 12,7 +0,1 | 21,7 - 21,9 | 2,5 ± 0,1** (max.2,2-2,9) |
| 250 | 5,8-5,9 | 1,6 - 2,0 | 0,4(0,7) | 5,8-5,9 | 0,9 - 1,3 | 0,3(0,6) |
| 700 | - - - | C, 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

In the case of greater dispersion alter the delivery-valve spring pre-tensioning accordingly.

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|-----------------------------|-------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 50 | 1100 1350 | 15,2-17,8 0 - 1 | - | - | - | ca. 12 | 100 250 330-390 = 2,0 | min. 8,5 5,8-5,9 | 250 800 1170 | 0,5-1,2 4,6-5,0 8,3 |
| ca. 48 | 11,3 4,0 | 1140-1150 1235-1265 | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control ⑤ | |
|---|---|--|--|---------------------------------------|--|------------------------------------|------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| (1) 700 | LDA 1,1 bar 218,5-220,5 (215,5-223,5) | 1140-1150* | LDA 700 | 0 bar 148,0-152,0 (145,0-155,0) | 100 250 dispersion.max.4(7) | 205,0-245,0 16-20** | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

Testoil-ISO 4113

C. Settings for Fuel Injection Pump with Fitted Governor

Checking values in brackets

* 1 mm less control rod travel than col. 2

U. Adjustment Test for Manifold Pressure Compensator

Test at n = rev/min decreasing
 increasing pressure – in bar gauge pressure

Notes:

(1) when $n \approx$

rev/min and
gauge pressure \approx

bar (= maximum full-load control rod travel)

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 110 A 320 RS 229 RQV 250-1100 PA 236/2R

supersedes -

company:

Volvo

engine:

THD 100 D

154,5 kW(210PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,6-2,7}
(2,55-2,75) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 700 | 9,7-9,8 | 12,1 - 12,3 | 0,4(0,8) | | | |
| 250 | 5,2-5,4 | 0,9 - 1,3 | 0,3(0,7) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|----------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1150 | 15,2-17,8 | - | - | - | ca. 11 | 100 | min. 6,8 | 200 | 0,6-1,0 |
| ca. 44 | 8,7 | 1140-1150 | | | | | 250 | 5,2-5,4 | 500 | 2,9-3,2 |
| | 4,0 | 1190-1220 | | | | | | 305-365=2,0mm | 800 | 5,0-5,3 |
| | 1350 | 0 - 1,0 | | | | | | | 1100 | 7,7 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|---|--|---|---------------------------------------|--|---------------------------------------|-------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 700 | 0,4 bar 121,0-123,0 (118,0-126,0) | 1140-1150* | LDA 700 | 0 bar 112,5-115,5 (109,5-118,5) | 100 | 320,0-360,0 bei 19,5-21,0 mm RW | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n =

rev/min decreasing pressure - in bar gauge pressure
increasing

VOL 10,0 g 1

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|-------------------------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| PE6P.. RS 229 - ..PA235/2R | 0,4 | 0 0,17 | 9,7 - 9,8 9,2 - 9,3 9,4 - 9,5 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

PE 8 P 120 A 920/5 LS 3804 RQV 300-1200 PA 506

1 - 8 - 4 - 3 - 6 - 5 - 7 - 2 je $45^\circ \pm 0,5^\circ (\pm 0,75)$

supersedes

company:

engine:

2.81

Fiat

331 kW(450 PS)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke

3,5-3,6
(3,45-3,65)

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1200 | 11,6±0,1 | 24,3 - 24,7 | 0,5(0,9) | | | |
| 300 | 4,9-5,1 | 1,9 - 2,5 | 0,8(1,2) | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|--|--|--|--|--------------|-------------------------------|--|--------------|-------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| max. | 1280 | 15,2-17,8 | - | - | - | ca. 10 | 100 | min. 6,5 | 250 | 0,6-0,9 |
| ca. 59 | 10,6 4,0 1500 | 1240-1250 1360-1390 0 - 1,0 | | | | 310-405 | 300 | 4,9-5,1 | 560 880 1200 | 3,8-4,3 5,5-5,7 7,8 |

Torque control travel a =

mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | | Torque-control ⑤ | |
|---|---|---|----------------------------------|---------------------------------------|---|------------------------------------|------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 1200 | 0,7 bar 243,0-247,0 (240,0-250,0) | 1240-1250* | LDA 1200 | 0 bar 160,0-164,0 (157,0-167,0) | 100 | 210,0-240,0 | - | - |

Checking values in brackets

* 1 mm less control rod travel than col. 2

2.82

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

FIA 13,8 g

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel |
|---------------------------|---------------------------------|-------------------------------------|------------------------------------|
| | | | diminution difference mm (1) |
| PE8P..LS3804 - ..PA506 | 0,70 | | 11,6 - 11,7 |
| | | 0 | 8,5 - 8,6 |
| | | 0,44 | 10,8 - 10,9 |
| | | 0,35 | 9,2 - 9,5 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ① and Governors

PE 6 P 120 A 720 RS 7001 RQV 250-1050 PA 539

supersedes -

company:

Saab-Scania

engine:

DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 5,00-5,10
(4,95-5,15) mm (from-BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12,3+0,1 | 23,8 - 24,2 | 0,5(0,9) | | | |
| 250 | 3,9-4,1 | 1,6 - 2,0 | 0,5(0,8) | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------|---------|--------------------------|---------------------------------------|----------------|--------------------------|-----------------------|--------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1050 1350 | 15,2-17,8 0 - 1,0 | - | - | - | ca. 9 | 250 100 | 4,0 min. 6,1 | 200 500 | 1,0-1,2 3,8-4,3 |
| ca. 59 | 11,3 4,0 | 1090-1100 1210-1240 | | | | | 250 350-370 | 3,9-4,1 = 2,0mm | 800 050 | 5,6-5,8 7,6-7,7 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|---|---|-------------------------------|---|--|--|-----------------------|--------------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1000 | 0,7 bar 238,0-242,0 (235,0-245,0) | 1090-1100* | LDA 600 | 0,7 bar 199,0-205,0 (196,0-208,0) | 100 | 23,0-28,0 bei 20,0-21,0 mm RW | | |
| | | | LDA 500 | 0 bar 161,0-165,0 (158,0-168,0) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXX

SCA 11,0 u 1

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel- diminution difference mm (1) |
|-------------------------|---------------------------------|-------------------------------------|---|
| ..RS 7001 - ..PA 539 | 0,7 bar | 0,45 0,37 0 | 12,3 - 12,4 12,0 - 12,1 11,6 - 11,8 11,4 - 11,5 |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 SAU 12,0c

1. Edition

En

PES 6 P 120 A 420 RS 3049 RQV 250-1000 PA 505

supersedes
company: Sauer
engine: D4KT

1 - 4 - 2 - 6 - 3 - 5 je 60°

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(3,15-3,35)
Port closing at prestroke 3,20-3,30 mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 11,3-11,4 | 24,5 - 24,9 | 0,5(0,8) | | | |
| 250 | 5,3-5,5 | 2,8 - 3,6 | 0,8(1,2) | | | |
| 700/400 | - - - | C, Sp. 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--------------|------------------------|---------------------------------------|---------|-----------------------|---------------------------------------|---------------|-----------------------|-----------------------|-----------------------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1000 1250 | 15,2-17,8 0 - 1 | - | - | - | ca. 14 | 100 250 | min. 7,0 5,3-5,5 | 250 350 1050 | 1,3 2,6-2,8 8,6 |
| ca. 68 | 10,3 4,0 | 1040-1050 1110-1140 | | | | 3a | 430-480 = 2,0 | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|---|---|--|---|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| LDA 1000 | 1,2 bar 245,0-249,0 (242,0-252,0) | 1040-1050* | LDA 700 | 1,2 bar 216,0-220,0 (213,0-223,0) | 100 | 225,0-235,0 | 1000 900 700 | 11,3 11,5 11,5 |
| | | | LDA 400 | 0 bar 94,0- 98,0 (91,0-101,0) | 100-170 (80-190) | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

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9.80

J3

J3

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing
XXXXXXXXXX

SAU 12,0 c

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 3049 - 505 | 1,2 bar | 0,65 0,32 0 | 11,5 - 11,6 11,0 - 11,1 8,2 - 8,6 7,9 - 8,0 |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4

1. Edition

En

PES 6 P 110 A 720/3 RS3036 RQV 300/600-900 PA453 K

supersedes -

company:

engine:

M a c k

ETA 676 E

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,40-2,50 mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 900 | 14,4 | 18,8-19,0 | | | | |
| 300 | 5,5 | 1,1- 2,0 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel ① | |
|--|--|--|--|--------------|-------------------------------|--|------------------------------|---------------------------------------|-------------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 66 | 970 1200 | 16,2-17,8 0 - 1 | - | - | - | ca. 18 | 100 300 400 570-630 | min. 10 7,9-8,1 3,8-5,2 =2,0 | 300 600 960 | 1,2-2,4 4,5-5,0 8,3 |
| ca. 54 | 13,4 4,0 | 940 - 950 1100-1130 | | | | ③a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ④a | Fuel delivery characteristics ⑤a high idle speed ⑤b | | Starting fuel delivery idle switching point ⑥ | | Torque-control travel ⑤ | |
|---|------------------------------------|---|--|------------------------------------|---|------------------------------------|----------------------------|-------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| LDA 900 | 1,6 bar 187,5-189,5 | 940-950* | LDA 600 | 1,6 bar 227,0-231,0 | 100 | 110,0-170 | | |
| | | | PLE 300 | 79-99 0.740-0.820 | 300 | 13 - 22 | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

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10.79

J11

J11

D. Adjustment Test for Manifold Pressure Compensator

-2-

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

| Pump/governor | Setting | Measurement | Control rod travel - diminution difference |
|---------------|----------------------|----------------------|--|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 3036 - 453K | 0,46 - 0,52 | 1,33 | --- |
| <hr/> | | | |
| | | | |

Notes:

(1) when n = rev/min and gauge pressure = bar (= maximum full-load control rod travel)

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps 1A and Governors

40

WPP 001/4 SCA 11,0e1

1. Edition

En

PE 6 P 100/720 RS73

EP/RSV 350-1100 P 1/310R

PE 6 P 90/720 RS75

EP/RSV 350-1100 P 1/310R

supersedes

11,0 e v. 5,71

company

Scania

engine

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6 + 0,1

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery S73 cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery S75 cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|---|
| 1000 | 12 | 13,6 - 14,2 | 0,6 0,4 | 12 | 8,5 - 9,2 | S73: 3,5±0,1** (max. 3,2-3,9) |
| 600 | 9 12 | 6,3 - 7,3 12,3 - 13,5 | | 9 12 | 2,9 - 4,2 7,4 - 8,4 | S75: 2,5±0,1** (max. 2,2-2,9) |
| 200 | 9 | 4,1 - 5,2 | | 9 | 1,8 - 2,8 | |

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion after the delivery-valve spring pre-tension accordingly

B. Governor Settings

350-1100 - 73

| 1 Upper rated speed rev/min Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | Intermediate rated speed 4 5 6 | 4 Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | 3 Torque control rev/min 10 | Control rod travel mm 11 |
|---|-------------------------------|---------------------------------------|-----------------------------------|--|--------------------------|--|-----------------------------------|--------------------------------|
| ca. 67 | 1100 1150 1200 | 16,0 11,7 6,0 | without auxiliary spring | ca. 31 | 350 | 6,0 | max. | |
| 2a | 1150 1200 1300 | 10,5-12,5 4,3- 7,8 0,3- 1,0 | with auxiliary spring | | 100 350 420 520 | 19 - 21 5,7-6,3 2,0-4,0 0,3-1,0 | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop Test oil temp. 40°C (104°F) rev/min 1 | cm ³ /1000 strokes 2 | 6 Rotational-speed limit Note changed to) rev/min 3 | 3a Fuel delivery characteristics rev/min 4 | cm ³ /1000 strokes 5 | Starting fuel delivery Idle rev/min 6 | cm ³ /1000 strokes 7 | 5 Idle stop rev/min 8 | Control rod travel mm 9 |
|--|------------------------------------|---|--|------------------------------------|---|------------------------------------|-----------------------------|-------------------------------|
| 1080 | 144,5-147,5 | 1120 | 600 | 139,0-143,0 | 100 350 | 240-290 13-17 | 350 | 6,0 |
| | | | | | | dispersion max. 1,5** | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

4.78

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Testoil-ISO 4113

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca.67 | 1100 | 16,0 | without auxiliary spring | | | ca.31 | 350 | 6,0 | max. | |
| | 1150 | 11,7 | | | | | 100 | 19 - 21 | | |
| | 1200 | 6,0 | | | | | 350 | 5,7-6,3 | | |
| | 1150 | 10,5-12,5 | | | | | 420 | 2,0-4,0 | | |
| | 1200 | 4,3- 7,8 | | | | | 520 | 0,3-1,0 | | |
| ②a | 1300 | 0,3- 1,0 | with auxiliary spring | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limit. | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ Idle stop | |
|-----------------------------|-----------------------|---------------------------|--|----------------------------------|-----------------------|-----------------------------|--------------------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1080 | 124,5-126,5 | 1120 | | 600 | 113,0-117,0 | 100 | 210-260 | 350 | 6,0 |
| | | | | | | 350 | 9 - 13 dispersion max. 1,5) | ** | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ②a | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limit. | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ Idle stop | |
|-----------------------------|-----------------------|---------------------------|--|----------------------------------|-----------------------|-----------------------------|-----------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 MB 11,8 b 1

1. Edition

En

PE 6 P 110/720 RS176 EP/RSV 300-1100 P 1/303R (1)
350-750 P 4/397R (2)

supersedes 11,8b-5,74
company Daimler-Benz
engine OM 355 (A)

(1) Schmidt rotary snow plough
(2) Generating sets

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke ^{2,80-2,90}
(2,75-2,95) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 11,3 - 12,3 | 0,4 | | | |
| 600 | 9 15 | 4,3 - 5,5 15,5 - 17,2 | | | | |
| 200 | 9 | 2,6 - 3,6 | | | | |

Adjust the fuel delivery from each outlet according to the values in

B. Governor Settings

..303R (1)

| ① Upper rated speed rev/min Degree of deflection of control lever 1 | | | Intermediate rated speed | | | ④ Lower rated speed Control-lever deflection in degrees rev/min mm | | | ③ Torque control rev/min mm | |
|---|---------------------------------------|----------------------------------|-----------------------------|---|---|---|--------------------------|--|-----------------------------------|--------------------------------|
| Control rod travel mm 2 | Control rod travel mm rev/min 3 | | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca.60 | 1100 1150 1200 | 16,0 11,0 4,0 | without auxiliary spring | | | ca.24 | 300 | 7,0 | 1080 | 0 |
| ②a | 1170 1200 1350 | 6,2-10,2 4,5- 8,6 0,3- 1,0 | | | | | 100 300 450 600 | 19 - 21 6,7-7,3 1,8-4,1 0 - 1 | 300 | 0,7-1,3 |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop Test oil temp 40°C (104°F) rev/min 1 | | ⑥ Rotational-speed limitat Note: changed to .) rev/min 3 | | ③a Fuel delivery characteristics rev/min cm ³ /1000 strokes 4 | | Starting fuel delivery Idle rev/min cm ³ /1000 strokes 6 | | ⑤ Idle stop rev/min Control rod travel mm 9 | |
|---|-------------|---|--|---|--|---|----------|---|--|
| (1) 1100 | 134,5-136,5 | 1120 | | | | 100 | ca.170,0 | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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Testoil-ISO 4113

B. Governor Settings

..397R (2)

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca.44 | 750 | 16,0 | without auxiliary spring | | | ca.23 | 350 | 6,0 | | ** |
| | 800 | 8,6 | | | | | 200 | 19 - 21 | | |
| | 825 | 4,0 | | | | | 350 | 5,9-6,1 | | |
| ca.42 | 750 | ca.11,0 | with auxiliary spring | | | | 400 | 0 - 1 | | |
| | 765 | ca. 3,8 | | | | | | | | |
| ②a | 840 | 0,1-1,0 | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ Idle | | ④a Idle stop | |
|-----------------------------|------------------|-----------------------------|--|----------------------------------|------------------|-------------------------------|------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 |
| (2) 730 | 135,0-138,0 | 750-760* | | 780- | 800:3,8mmRW | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

** Set idle-speed auxiliary spring at 2 mm control-rod travel
then turn back 1/2 turn.

Testoil-ISO 4113

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ②a | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ Idle | | ④a Idle stop | |
|-----------------------------|------------------|-----------------------------|--|----------------------------------|------------------|-------------------------------|------------------|--------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 11,0 e
3. Edition

En

PE 6 P 100/720 RS31 EP/RSV 350-1100 P 1/307R
PE 6 P 100/720 RS31Y EP/RSV 350-900 P 1/307R
RS31V

supersedes 5.71
company Scania
engine DS 11

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,6 \pm 0,1$ -S31
 $2,4 \pm 0,1$ -31Y,V mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 13,6 - 14,2 | 0,6 | | | 3,5 ± 0,1** (max. 3,2-3,9) |
| 600 | 9 | 6,3 - 7,3 | | | | |
| | 12 | 12,3 - 13,5 | | | | |
| 200 | 9 | 4,1 - 5,2 | | | | |

Adjust the fuel delivery on each fourlet according to the values in **2a** in the case of greater dispersion after the delivery-valve spring pre-tension accordingly.

B. Governor Settings

350-1100 - 35

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca. 67 | 1100 | 16,0 | without auxiliary spring | | | ca. 31 | 350 | 6,0 | 1100 | 0 |
| | 1150 | 11,7 | | | | | | | 500 | 0 |
| | 1200 | 6,0 | | | | | | | | |
| | 1150 | 10,4-12,5 | with auxiliary spring | | | | 400 | 3,2-4,7 | 300 | 1,2-1,8 |
| 1200 | 4,4- 7,8 | 550 | | | | 0 - 1 | | | | |
| 1350 | 0,3- 1,0 | | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|------------------------------------|----------------------------|-----|------------------------------------|-----|-------------------------------------|------------------------------------|--------------|--------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to) rev/min | | | | Idle | | | |
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | 4 | cm ³ /1000 strokes 5 | 6 | rev/min 7 | cm ³ /1000 strokes 8 | rev/min 9 | Control rod travel mm 10 |
| 1080 | 144,5-147,5 | 1120 | 600 | 139,0-143,0 | 100 | 240-290 | 350 | 6,0 | |
| | | | | | 350 | 13 - 17)** dispersion max. 1,5) | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

4.78

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Testoil-ISO 4113

B. Governor Settings

350-900 - 31y

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 52 | 900 | 16,0 | without auxiliary spring | | | ca. 28 | 350 | 6,0 | 880 | 0 |
| | 950 | 12,0 | | | | | 100 | 19 - 21 | | |
| | 1000 | 7,0 | | | | | 350 | 5,7-6,3 | | |
| | 980 | 7,8-10,6 | with auxiliary spring | | | | 400 | 3,0-4,5 | | 500 |
| | 1000 | 4,2- 8,8 | | | | | 500 | 0 - 1 | | |
| 2a | 1150 | 0,3- 1 | | | | | | 380 | 1,2-1,8 | |

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|-----------------------------|------------------|-----------------------------|--|----------------------------------|------------------|-----------------------------|------------------|-------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 |
| 900 | 160,5-163,5 | 920 | | | | 100 | 240 - 290 | 350 | 6,0 |
| | | | | | | 350 | 13 - 17) | | |
| | | | | | | dispersion .max.1,5) | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

B. Governor Settings

350-900 - 31V

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 52 | 900 | 16,0 | without auxiliary spring | | | ca. 28 | 350 | 6,0 | 380 | 0 |
| | 950 | 12,0 | | | | | 100 | 19 - 21 | | |
| | 1000 | 7,0 | | | | | 350 | 5,7-6,3 | | |
| 2a | 980 | 7,8-10,6 | with auxiliary spring | | | 400 | 3,0-4,5 | 500 | 380 | 1,2-1,8 |
| | 1000 | 4,2- 8,8 | | | | 500 | 0 - 1 | | | |
| | 1150 | 0,3- 1 | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limitat. | | 3a Fuel delivery characteristics | | Starting fuel delivery Idle | | 5 Idle stop | |
|-----------------------------|------------------|-----------------------------|--|----------------------------------|------------------|-----------------------------|------------------|-------------|-----------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min | cm³/1000 strokes | rev/min | | rev/min | cm³/1000 strokes | rev/min | cm³/1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | | 4 | 5 | 6 | 7 | 8 | 9 |
| 900 | 158,5-161,5 | 920 | | | | 100 | 240-290 | 350 | 6,0 |
| | | | | | | 350 | 13 - 17) | | |
| | | | | | | dispersion .max.1,5) | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Test Specifications Fuel Injection Pumps ①A and Governors

40

WPP 001/4 SCA 11,0 1

2. Edition

En

PE 6 P 100/720 RS146 EP/RSV 350-1100 P 1/310
RS146Y 350-1100
RS145Z 350- 900

supersedes 12.71
company Scania
engine DS 11 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,6 + 0,1

mm (from BDC)

Y = 2,4+0,1

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 11,6 - 12,1 | 0,5 | | | 2,5±0,1** (max.2,2-2,9) |
| 600 | 9 12 | 8,7 - 4,9 9,5 - 10,9 | | | | |
| 200 | 9 | 2,4 - 3,4 | | | | |

Adjust the fuel delivery from each outlet according to the values in

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

B. Governor Settings

350-1100 - 146

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|-----------------------------|---|---|--|--------------------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca.67 | 1100 1150 1200 | 16,0 11,7 6,0 | without auxiliary spring | | | ca.31 | 350 | 6,0 | max. | |
| ②a | 1150 1200 1350 | 10,4-12,5 4,4- 7,8 0,3- 1,0 | | | | | with auxiliary spring | 100 350 400 550 | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limit | | ③a Fuel delivery characteristics | | Starting fuel delivery ⑤ | | ④a Idle stop | |
|----------------------------|------------------------------------|---------------------------|-----|------------------------------------|--------------------|--------------------------|------------------------------------|-----------------------|--|
| Test oil temp 40°C (104°F) | | Note changed to) rev/min | | | | Idle | | Control rod travel mm | |
| rev/min 1 | cm ³ /1000 strokes 2 | 3 | 4 | cm ³ /1000 strokes 5 | 6 | rev/min 7 | cm ³ /1000 strokes 8 | rev/min 9 | |
| 1100 | 159,0-161,0 | 1120 | 600 | 154,0-158,0 | 100 | 190-240 | 350 | 6,0 | |
| | | | | | 225 | 10-12 | ** | | |
| | | | | | dispersion max.1,5 | | | | |
| | | | | | 1200 | 40-42 | | | |
| | | | | | dispersion max. 4) | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

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Imprime en République Fédérale d'Allemagne par Robert Bosch GmbH

4.78

K1

KA

Testoil-ISO 4113

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|-----------------------------|---|---|--|--------------------------|--|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca.67 | 1100 1150 1200 | 16,0 11,7 6,0 | without auxiliary spring | | | ca.31 | 350 | 6,0 | max. | |
| ②a | 1150 1200 1350 | 10,4-12,5 4,4- 7,8 0,3- 1,0 | | | | | 100 350 400 550 | 19 - 21 5,7-6,3 3,2-4,7 0 - 1 | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery | | 5 Idle stop | |
|-----------------------------|-----------------------|--------------------------|--------------|----------------------------------|--------------|------------------------|--------------|-------------------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | Idle | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| 1100 | 168,0-170,0 | 1120 | 600 | 163,0-166,0 | 100 | 190-240 | 350 | 6,0 | |
| | | | | | 225 | 10 - 12 | ** | | |
| | | | | | dispersion | on.max.1,5 | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

350-900 - 146Z

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|-----------------------------|---|---|--|--------------------------|--|-------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| ca.62 | 900 950 1000 | 16,0 11,8 5,5 | without auxiliary spring | | | ca.27 | 350 | 6,0 | 880 450 370 | |
| ②a | 950 1000 1080 | 10,6-12,6 3,4- 7,6 0 - 1 | | | | | 100 350 400 460 | 19 - 21 5,7-6,3 1,2-3,7 0 - 1 | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|-----------------------|--------------------------|--------------|----------------------------------|--------------------|--------------------------|--------------|-------------------------------|--|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | Idle | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 | |
| 900 | 155,0-157,0 | 920 | | | 100 | 190-240 | 350 | 6,0 | |
| | | | | | 225 | 10- 12 | ** | | |
| | | | | | dispersion.max.1,5 | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps (1A) and Governors

40

WPP 001/4 SCA 14,0 d
1. Edition

PE 8 P 110 A920/4 LS 3038 EP/RSV 350-1100 P 1/371R
.. LS 3055 P 1/371R

supersedes -
company Scania
engine (295kW - 101PS)
DS 14

1 - 2 - 7 - 3 - 4 - 5 - 6 - 8 $\pm 0,50$
0 -45 -90 -135-180-225-270-315° ($\pm 0,75$)

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke (3,25-3,45) mm (from BDC)

| Rotational speed rev/min | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Difference cm ³ /100 strokes | Control rod travel mm | Fuel delivery cm ³ /100 strokes | Spring pre-tensioning (torque-control valve) mm |
|-----------------------------|--------------------------|---|--|--------------------------|---|---|
| 1 | 2 | 3 | 4 | 2 | 3 | 6 |
| 1000 | 13,4 | 16,3 - 16,5 | 0,4(0,8) | 13,5 | 16,3 - 16,5 | 2,5 \pm 0,1** |
| 350 | +0,1 4,0-4,1 | 0,7 - 1,1 | 0,2(0,4) | +0,1 6,3-6,4 | 0,7 - 1,1 | |
| 600 | - - - | C, 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in
** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly

B. Governor Settings

371 - 3038

| 1 Upper rated speed rev/min | | | Intermediate rated speed | | | 4 Lower rated speed | | | 3 Torque control | |
|---------------------------------------|-----------------------|-------------------------------|--------------------------|---|---|-------------------------------------|---------|-----------------------|------------------|-----------------------|
| Degree of deflection of control lever | Control rod travel mm | Control rod travel mm rev/min | | | | Control-lever deflection in degrees | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| loose | 800 | 0,3-1,0 | | | | ca.31 | 350 | 4,0 | - | - |
| | x = | 5,2 | | | | | 100 | min.19 | | |
| ca.67 | 12,4 | 1140-1150 | | | | | 350 | 4,4-4,6 | | |
| 2a | 4,0 | 1200-1240 | | | | | 385-415 | = 2,0 | | |
| | 1270 | 0,3 -1,7 | | | | | 500 | 0 - | | |

The numbers denote the sequence of the tests

C. Settings for Fuel Injection Pump with Fitted Governor

| 2b Full-load stop | | 6 Rotational-speed limit | | 3a Fuel delivery characteristics | | Starting fuel delivery 5 | | 4a Idle stop | |
|-----------------------------|-------------------------------|--------------------------|---------|----------------------------------|---------|-------------------------------|---------|-----------------------|-----|
| Test oil temp. 40°C (104°F) | | Note: changed to rev/min | | | | Idle | | | |
| rev/min | cm ³ /1000 strokes | 3 | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm | |
| 1 | 2 | | 4 | 5 | 6 | 7 | 8 | 9 | |
| 1000 | 163,0-165,0 (160,0-168,0) | 1140-1150* | 600 | 164,0-168,0 (161,0-171,0) | 100 | 190-240 | | | |
| | | | | | 350 | 4,0mm RW | | | |
| | | | | | | dispersion max.2(4)** | | | |
| | | | | | | | | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col 2

2.79

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K3

K3

B. Governor Settings

371 - 3055

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| loose | 800 | 0,3-1,0 | | | | ca.31 | 350 | 5,8 | | |
| | x | = 5,2 | | | | | 100 | min.19 | | |
| | | | | | | | 350 | 6,3-6,4 | | |
| ca.67 | 12,5 | 1140-1150 | | | | | 525-585 | = 2,0 | | |
| | 4,0 | 1240-1275 | | | | | 650 | 0 - 1 | | |
| ②a | 1350 | 0,3- 1,7 | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

Testoil-ISO 4113

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ Idle stop | |
|-----------------------------|------------------------------|-----------------------------|--|----------------------------------|------------------------------|--------------------------------|--------------------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| 1000 | 163,0-165,0 (160,0-168,0) | 1140-1150* | | 600 | 164,0-168,0 (161,0-171,0) | 100 | 190-240 | | |
| | | | | | | 350 | 6,3-6,4mm dispersion max. 2 | RW (4) | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

| ① Upper rated speed rev/min | | | Intermediate rated speed | | | ④ Lower rated speed | | | ③ Torque control | |
|--|-------------------------------|---------------------------------------|--------------------------|---|---|--|--------------|-------------------------------|------------------|--------------------------------|
| Degree of deflection of control lever 1 | Control rod travel mm 2 | Control rod travel mm rev/min 3 | 4 | 5 | 6 | Control-lever deflection in degrees 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | Control rod travel mm 11 |
| | | | | | | | | | | |
| ②a | | | | | | | | | | |

C. Settings for Fuel Injection Pump with Fitted Governor

| ②b Full-load stop | | ⑥ Rotational-speed limitat. | | ③a Fuel delivery characteristics | | Starting fuel delivery Idle | | ⑤ Idle stop | |
|-----------------------------|-----------------------|-----------------------------|--|----------------------------------|-----------------------|--------------------------------|-----------------------|--------------|-------------------------------|
| Test oil temp. 40°C (104°F) | | Note: changed to ...) | | | | | | | |
| rev/min 1 | cm³/1000 strokes 2 | rev/min 3 | | rev/min 4 | cm³/1000 strokes 5 | rev/min 6 | cm³/1000 strokes 7 | rev/min 8 | Control rod travel mm 9 |
| | | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4

2. Edition

En

PES 6 P 120 A 420 RS 297. RQ 200/1100 PA 279D

supersedes 3.80
company: Saurer
engine: D 2 KUT
176 kW (240 PS)

Testing with T nozzles and fuel lines 8x2x1000
Markering for start of pump delivery + 17° camshaft BTDC

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 3,3 - 3,4 mm (from BDC) (+0,15
-0,05)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 25,1 - 25,8 | 1,0 | | | |
| 600 | 6 15 | 6,2 - 7,4 30,5 - 32,9 | | | | |
| 200 | 6 | 1,8 - 2,8 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Checking of slider PRG check | | Full-load speed regulation Setting point | | Test specifications | | Idle speed regulation Setting point | | Test specifications | | Torque control | |
|---------------------------------|-------------------------------|---|-------------------------------|-------------------------------|---------------------------------------|--|-------------------------------|--------------------------|------------------------------------|-------------------|-------------------------------------|
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 550 | 15,7-16,3 | 550 | 16,0 | 1120 1150 1200 1250 | 14,6-15,0 8,8-13,3 0 - 7,3 0 | 500 | 0 | 100 200 300 410 | 6,4-8,8 4,9-6,9 2,1-4,5 0 | 700 850 950 | 15,8-16,0 15,4-15,6 15,0-15,3 |

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|--|------------------|--------------------------------|-------------------------------|------------------------------------|--------------------------------------|--|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | Control rod travel mm 3a | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | Control rod travel mm 7 Control rod travel mm 6 |
| LDA 1100 LDA 1100 (increase by 3,0 cm ³) | 0,7 bar 206,0-208,0 0 bar 143,0-149,0 | | | LDA 700 | 0,7 bar 171,0-173,0 | 150 | 18,5 - 20,5 |

Checking values in brackets

4.82

Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500 rev/min decreasing pressure - in bar gauge pressure
increasing

297 - 279 D

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 297 - 279 D | 0,33 - 0,36 | 0,06 - 0,07 | - 0,1 ca. - 1,8 |

Notes:

(1) when n = 1100 rev/min and gauge pressure 0,7 bar (= maximum full-load control rod travel)

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 BOS 12,3 f

2. Edition

En

PE 6 P 120 A 721 RS 217 RQ 250/1100 PA 131 DR (1)
RQ 250/1050 PA 289 DR (2)

supersedes -
company: Büssing
engine: S 12 DA 62
(1 - 320 PS)
(2 - 300 PS)

Testing with T nozzles and fuel lines 8x2x1000

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

2,8 + 0,1

+0,15
-0,05

Port closing at prestroke

mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 19,6 - 20,4 | 0,8 | | | |
| 600 | 9 15 | 9,6 - 11,0 21,3 - 23,2 | | | | |
| 200 | 9 | 5,0 - 6,2 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

Testoil-ISO 4113

B. Governor Settings

RQ .. 131 DR (1)

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|--------------|-----------------------|-------------------------------|---------------------|--------------------------------|----------------|--------------------------------|
| ① | | Setting point | | Test specifications | | Setting point | | Test specifications | | ③ | |
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 500 | 15,7-16,3 | 500 | 16,0 | 1120 | 14,7-15,0 | 490 | 0 | 160 | 6,6-8,1 | 620 | 15,8-16,0 |
| | | | | 1150 | 9,0-13,4 | | | 150 | 4,3-6,3 | 820 | 15,0-15,2 |
| | | | | 1200 | 0 - 6,7 | | | 350 | 0 - 2,4 | | |
| | | | | 1250 | 0 | | | 390 | 0 | | |

Torque-control travel on flyweight assembly dimension a = 0,3 mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|---|------------------------------------|------------------|--|-------------------------------|------------------------------------|--------------------------------------|---------------------------------------|
| ② | | ③a | | ③b | | ⑥ | |
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| (1-1100) | 0,75 bar) 241,0-243,0 | | | 0,75 | bar | | |
| | | | | 700 | 202,0 - 206,0 | 100 | ca. 16mm RW |
| 1100 | 0 bar 212,0-216,0 | | | 500 | 199,0 - 205,0 | | |
| (increase by 3,0 cm ³) | | | | | | | |

Checking values in brackets

10.75

B Governor Settings

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | | | | | |
|---------------------------------|-----------------------|----------------------------|-----------------------|------------------------------|---------------------------------------|-----------------------|-----------------------|--------------------------|------------------------------------|---------------------|------------------------|---------|-----------------------|---------|-----------------------|
| ① | | Setting point | | Test specifications | | ④ | | Setting point | | Test specifications | | ⑤ | | ③ | |
| rev/min | Control rod travel mm | rev/min | Control rod travel mm | Control rod travel mm | rev/min | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | | | | |
| 500 | 15,7-16,3 | 500 | 16,0 | 1070 1100 1130 1180 | 14,3-14,8 6,5-12,5 0 - 8,0 0 | 520 | 0 | 150 250 350 420 | 6,6-8,0 4,5-6,5 1,0-3,3 0 | 750 950 | 15,7-16,0 14,8-15,0 | | | | |

Torque-control travel on flyweight assembly dimension a

0,35

mm

Speed regulation At 1090-1105

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever (2) Test oil temp 40°C (104°F) | | Control rod stop (3a) | Fuel delivery characteristics (3b) | | Starting fuel delivery idle speed (6) | |
|--|------------------------------------|-----------------------|------------------------------------|--|---------------------------------------|---|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | Control rod travel cm ³ /1000 strokes / mm 7 |
| (2-1050) | 0,7 bar) 224,5-227,5 | | 0,7 700 0 500 | bar 193,5 - 198,5 bar 121,0 - 125,0 | 100 | ca. 16 mmRW |

Checking values in brackets

D. Adjustment Test for Manifold Pressure Compensator

Test at n = 500
 XXXXXXXX
 decreasing pressure - in bar gauge pressure
 increasing

| Pump/governor | Setting | Measurement | Control rod travel- diminution difference |
|---------------|----------------------|----------------------|---|
| | Gauge pressure = bar | Gauge pressure = bar | mm (1) |
| 217 - 131 D | 0,23 - 0,26 | 0,43 - 0,47 | ca. 5,2 mm |
| 217 - 289 D | 0,20 - 0,24 | 0,49 - 0,52 | ca. 2,5 mm |

Notes

(1) when n =

En

1100

1050

rev/min and
gauge pressure =

0,75

0,7

bar (= maximum full-load control rod travel)

Testoil-ISO 4113

①

Test Specifications Fuel Injection Pumps ① and Governors

40

WPP 001/4 VOL 10,0i

1. Edition

En

PE 6 P 100 A 320 RS365

RQV 250-1100 PA 232/2R

supersedes

company:

engine:

Volvo

TD 100 A

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,60-2,70
(2,55-2,75) mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|----------------------------------|--|---|----------------------------------|--|--|
| 700 | 13,0-13,1 | 14,5-14,8 | 0,4(0,6) | | | 2,5+0,1** (max 2,2-2,9) |
| 250 | 6,0-6,1 | 1,0 - 1,4 | 0,2(0,5) | | | |
| 700 | - - - | C 4-5 | 0,6(1,0) | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---|---|---|---|--------------|----------------------------------|---|----------------------------|----------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever 1 | rev/min Control rod travel mm 2 | Control rod travel mm rev/min 3 | Degree of deflection of control lever 4 | rev/min 5 | Control rod travel mm 6 | Degree of deflection of control lever 7 | rev/min 8 | Control rod travel mm 9 | rev/min 10 | mm 11 |
| ca. 50 | 1100 1350 | 15,2-17,8 0 - 1 | - | - | - | ca. 12 | 100 250 350-380= 2,0 | min. 9,0 6,0-6,1 | 250 430 1140 | 1,1-1,2 4,4-4,6 8,2 |
| ca. 45 | 12,0 4,0 | 1140-1150 1250-1290 | | | | 3a | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) ② | | Rotational-speed limitation intermediate speed ②b | Fuel delivery characteristics ⑤a | | Starting fuel delivery idle switching point ⑥ | Torque-control ⑤ | |
|---|---|---|----------------------------------|---------------------------------------|---|------------------------------------|--------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes 7 | rev/min 8 |
| LDA 700 | 0,5 bar 145,0-148,0 (143,0-150,0) | 1140-1150* | LDA 700 | 0 bar 115,0-118,0 (113,0-120,0) | 100 250 | 220 - 260 11 - 15** | |
| | | | | | | | ./. |

Checking values in brackets

* 1 mm less control rod travel than col. 2

8.79

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Testoil-ISO 4113

D. Adjustment Test for Manifold Pressure Compensator

VOL 10,0 i

Test at n = rev/min decreasing pressure - in bar gauge pressure
increasing

-2-

| Pump/governor | Setting Gauge pressure = bar | Measurement Gauge pressure = bar | Control rod travel - diminution difference mm (1) |
|---------------|---------------------------------|-------------------------------------|--|
| 365 - 232/2 | 0,26 | 0,10 | 12,8 - 12,9 11,4 - 11,5 |
| | | | |

Notes:

(1) when n =

rev/min and
gauge pressure =

bar (= maximum full-load control rod travel)

** In the case of greater dispersion alter the delivery-valve spring pre-tension accordingly.

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

VDT-WPP 001/4 DAF 11,6c

3. Edition

En

PE 6 P 110/320 RS 198
ARQ 200/1100 PA 24 R
RQV 200-1100 PA 37 R ./.
EP/RSV 200-1100 P 1/326 R ./. supersedes 2.74
company: DAF
engine: DKA 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

(+0,15)
(-0,05)

Port closing at prestroke 2,8 + 0,1 mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ / 100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 13,2 - 13,9 | 0,5 | | | |
| 600 | 9 | 6,4 - 7,6 | | | | |
| 600 | 12 | 13,2 - 14,7 | | | | |
| 600 | 15 | 19,0 - 20,9 | | | | |
| 200 | 9 | 4,8 - 6,0 | | | | |

Adjust the fuel delivery from each outlet according to the values in

Testoil-ISO 4113

B. Governor Settings

RQ 200/1100 PA24R

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|----------------------------|-------------------------------|-------------------------------|---------------------------------------|-----------------------|-------------------------------|--------------------------|-----------------------------------|----------------|--------------------------------|
| ① | | Setting point | | Test specifications | | Setting point | | Test specifications | | ③ | |
| rev/min 1 | Control rod travel mm 2 | rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | rev/min 6 | rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 500 | 15,7-16,3 | 500 | 16,0 | 1120 1150 1180 1230 | 15,6-16,0 7,7-13,5 0 - 8,6 0 | 440 | 0 | 100 200 300 340 | 6,7-8,1 4,4-6,5 0 -2,2 0 | - | - |

Torque-control travel
on flyweight assembly dimension a = mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|--|-------------------------------------|------------------|-------------------------------|-------------------------------------|--------------------------------------|---------------------------------------|
| ② | | ③a | ③b | | ⑥ | |
| rev/min 1 | cm ³ /-1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /-1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 850 | 117,5 - 120,5 (115,5 - 122,5) | | | | 100 | 24,5 - 25,5 |

Checking values in brackets

2.77

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L9

L9

B. Governor Settings

RQV..PA 37 R

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--------------------------------------|--|---------------------------------------|---------|-----------------------|---------------------------------------|---------------------------------|---|-----------------------|----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca.68 | 1100 1150 1200 1240 1320 | 14,8-17,8 10,2-14,2 5,7-10,4 0-7,2 0 | | | | ca.12 | 100 200 300 500 700 | 6,3-8,0 4,4-6,8 3,3-3,8 1,7-3,1 0 | | |
| | | | | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| see RQ | | 1120 | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV 200 - 1100 P 1/326

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--|--|---|---------|-----------------------|---------------------------------------|---------------------------------|---|-----------------------|-------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca.68 | 1100 1180 1220 1200 1240 1310 | 16,0 10,2 6,0 5,6-9,6 2,0-5,6 0-1 | without auxiliary spring with auxiliary spring | | | ca.29 | 200 100 200 300 400 | 6,0 19-21 5,7-6,3 1,8-3,8 0-1 | 1080 200 | 0 0 0,3-0,5 |
| | | | | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-------------------------------|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | 1120 | | | | | | |
| In accordance with special nameplate on pump! | | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO 4113

Test Specifications Fuel Injection Pumps ② and Governors

VDT-WPP 001/4 DAF 11,6 a
3. Edition

En

PE 6 P 110/320 RS 109

RQ 200/1100 PA 24 R
RQV 200-1100 PA 37 R
EP/RSV 200-1100 P1/326 R

supersedes 8.72
company: van Doorne
engine: DKA 1160

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke 2,8 + 0,1 mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1000 | 12 | 13,2-13,9 | 0,5 | | | |
| 600 | 9 | 6,4- 7,6 | | | | |
| 600 | 12 | 13,2-14,7 | | | | |
| 600 | 15 | 19,0-20,9 | | | | |
| 200 | 9 | 4,8- 6,0 | | | | |

Adjust the fuel delivery from each outlet according to the values in .

B. Governor Settings

RQ .. PA 24 R

| Checking of slider PRG check rev/min 1 | | Full-load speed regulation Setting point rev/min 3 | | | | Idle speed regulation Setting point rev/min 7 | | | | Torque control rev/min 11 | |
|---|--|---|--|--|--|--|--|--|--|---------------------------------|--|
| Control rod travel mm 2 | | Test specifications Control rod travel mm 4 | | | | Test specifications Control rod travel mm 10 | | | | Control rod travel mm 12 | |
| 500 | | 500 | | | | 490 | | | | - | |
| 15,7-16,3 | | 16,0 | | | | 0 | | | | - | |
| Breakaway not before n=1120 | | 1100 | | | | 100 | | | | | |
| | | 1140 | | | | 200 | | | | | |
| | | 1170 | | | | 300 | | | | | |
| | | 1210 | | | | 390 | | | | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) rev/min 1 | | Control rod stop rev/min 3 | | Fuel delivery characteristics rev/min 4 | | Starting fuel delivery Idle speed rev/min 6 | |
|---|--|----------------------------------|--|---|--|--|--|
| cm ³ /1000 strokes 2 | | | | cm ³ /1000 strokes 5 | | cm ³ /1000 strokes/mm 7 | |
| 1090 | | 1120 | | | | 100 | |
| 118,0 - 120,0 | | | | | | ca. 24 | |
| (increase by 1,0 cm ³) | | | | | | ./. | |

Checking values in brackets

11.75

Testoil-ISO 4113

B. Governor Settings

RQ..PA 37 RQV..PA 37 DAF 11,6a -2-

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--------------------------------------|--|---------------------------------------|---------|-----------------------|---------------------------------------|---------------------------------|---|-----------------------|----|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1100 1150 1200 1240 1320 | 14,8-17,8 10,2-14,2 5,7-10,4 0 - 7,2 0 | | | | ca. 12 | 100 200 300 500 700 | 6,3-8,0 4,4-6,8 3,3-3,8 1,7-3,1 0 | - | - |
| | | | | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
| 1090 | 118,0-120,0 | 1120 | | | 100 | ca. 24 | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

B. Governor Settings

EP/RSV ..326

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--|--|---|---------|-----------------------|---------------------------------------|---------------------------------|---|-----------------------|-------------------|
| Degree of deflection of control lever | rev/min Control rod travel mm | Control rod travel mm rev/min | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca. 68 | 1100 1180 1220 1200 1240 1310 | 16,0 10,2 6,0 5,6-9,6 2,0-5,6 0 - 1 | without auxiliary spring with auxiliary spring | | | ca. 29 | 200 100 200 300 400 | 6,0 19 - 21 5,7-6,3 1,8-3,8 0 - 1 | 1080 350 200 | 0 0 0,3-0,5 |
| | | | | | | (3a) | | | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery idle switching point | Torque-control travel | |
|---|-------------------------------|---|--|-------------------------------|--|-----------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 9 |
| In accordance with special nameplate on pump! | | | | | | | |

Checking values in brackets

* 1 mm less control rod travel than col. 2

Testoil-ISO 4113

②

Test Specifications Fuel Injection Pumps ② and Governors

40

WPP 001/4 SCA 8,0 a
3. Edition

En

PE 6 P 100/720 RS140 RQ 250/1250 PA102R
RQV 200-1200 PA101R ./.
PE 6 P 100 A720 RS201 RQV 200-1200 PA170R ./.
EP/RSV 350-1200 P1/310R ./.

supersedes 12.72
company: Scania
engine: DS 8

Port-closing test with/without ROBO diaphragm

All test specifications are valid for Bosch Fuel Injection Pump Test Benches and Testers

A. Fuel Injection Pump Settings

Port closing at prestroke $2,5 \pm 0,1$ mm (from BDC)

| Rotational speed rev/min 1 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Difference cm ³ /100 strokes 4 | Control rod travel mm 2 | Fuel delivery cm ³ /100 strokes 3 | Spring pre-tensioning (torque-control valve) mm 6 |
|----------------------------------|-------------------------------|--|---|-------------------------------|--|--|
| 1200 | 13,5 | 12,2-12,6 | 0,5 | | | 2,5 ± 0,1** (max. 2,2-2,9) |
| 600 | 13,5 | 11,3-11,7 | | | | |
| 225 | 6 | 1,0- 1,2 | | | | |
| 1300 | 6 | 2,9- 3,4 | | | | |

Adjust the fuel delivery from each fuel injection pump to the delivery-valve spring pre-tension accordingly.

B. Governor Settings

RQ.. 102R

| Checking of slider PRG check | | Full-load speed regulation | | | | Idle speed regulation | | | | Torque control | |
|---------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------------|-------------------------------|-------------------------------|--------------|--------------------------------|----------------|--------------------------------|
| rev/min 1 | Control rod travel mm 2 | Setting point rev/min 3 | Control rod travel mm 4 | Control rod travel mm 5 | Test specifications rev/min 6 | Setting point rev/min 7 | Control rod travel mm 8 | rev/min 9 | Control rod travel mm 10 | rev/min 11 | Control rod travel mm 12 |
| 750 | 15,6-16,4 | 750 | 16,0 | 1270 | 15,6-16,0 | 730 | 0 | 180 | 7,0-8,1 | | |
| | | | | 1320 | 10,3-14,4 | | | 250 | 5,5-6,8 | | |
| | | | | 1380 | 3,5-10,0 | | | 400 | 2,9-4,4 | | |
| | | | | 1420 | 0 - 7,8 | | | 500 | 1,3-2,8 | | |
| | | | | 1500 | 0 | | | 630 | 0 | | |

Torque-control travel
on flyweight assembly dimension a =

mm

Speed regulation: At

1 mm less control
rod travel

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery on governor control lever Test oil temp. 40°C (104°F) | | Control rod stop | Fuel delivery characteristics | | Starting fuel delivery Idle speed | |
|--|------------------------------------|------------------|-------------------------------|------------------------------------|--------------------------------------|---------------------------------------|
| rev/min 1 | cm ³ /1000 strokes 2 | rev/min 3 | rev/min 4 | cm ³ /1000 strokes 5 | rev/min 6 | cm ³ /1000 strokes/mm 7 |
| 1200 | 123,0-125,0 (13,5±0,5mmRW) | | 600 | 113,0-117,0 | 100 | 190 - 240 |
| | | | | | 225 | 11 - 13 |
| | | | | | dispersion | max. 1,5)** |
| | | | | | 1300 | 29 - 34 |
| | | | | | dispersion | max. 4) |
| | | | | | | ./. |

Checking values in brackets

10.77

Testoil-ISO 4113

L15

L15

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B. Governor Settings

RQV..101R, 170R

SCA 8,0a

-2-

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|------------------------------|---|---------------------------------------|---------|-----------------------|---------------------------------------|--------------------------|------------------------------------|-----------------------|---------------------------|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca .66 | 1240 1300 1450 1590 | 15,0-17,6 11,3-14,9 0,6- 7,4 0 | - | - | - | ca .10 | 100 250 400 530 | 6,4-8,0 3,9-6,0 1,7-3,2 0 | 300 600 240 | 1,6-2,4 4,3-4,6 8,2 |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|-------------------------------|--|--|-------------------------------|---|---|--------------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1200 (13,5 | 123,0-125,0 ± 0,5mm RW) | 1230-1240* | 600 | 113,0-117,0 | 100 225 1300 | 190 - 240 11 - 13 29 - 34 dispersion max. 1,5 dispersion max. 4 | ** | |

Check values in brackets

* 1 mm less control rod travel than col 2

Testoil-ISO

B. Governor Settings

EP/RSV..310R

| Upper rated speed | | | Intermediate rated speed | | | Lower rated speed | | | Sliding sleeve travel | |
|---------------------------------------|--|--|---|---------|-----------------------|---------------------------------------|---------------------------------|---|-----------------------|----|
| Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | Degree of deflection of control lever | rev/min | Control rod travel mm | rev/min | mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| ca .71 | 1200 1250 1300 1250 1320 1420 | 16,0 11,9 6,3 10,8-12,4 2,4- 6,0 0,3- 1,0 | without auxiliary spring with auxiliary spring | | | ca .31 | 350 100 350 400 520 | 6,0 19 - 21 5,7-6,3 3,3-4,5 0 - 1 | | |

Torque control travel a = mm

C. Settings for Fuel Injection Pump with Fitted Governor

| Full-load delivery Control-rod stop Test oil temp. 40°C (104°F) | | Rotational-speed limitation intermediate speed | Fuel delivery characteristics high idle speed | | Starting fuel delivery Idle switching point | | Torque-control travel | |
|---|-------------------------------|--|--|-------------------------------|---|---|--------------------------|-----------------------|
| rev/min | cm ³ /1000 strokes | rev/min | rev/min | cm ³ /1000 strokes | rev/min | cm ³ /1000 strokes | rev/min | Control rod travel mm |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1200 (13,5 | 123,0-125,0 ±0,5 mmRW) | 1230-1240* | 600 | 113,0-117,0 | - 225 1300 | - 10 - 14 34 - 44 dispersion max. 1,5 dispersion max. 4 | ** | 350 6,0 |

Checking values in brackets

* 1 mm less control rod travel than col 2